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Title of doctoral dissertation (in Polish): (Nie)ujawniona zrównoważona działalność: krytyczna analiza informacji dotyczących klimatu ujawnianych przez linie lotnicze

Supervisor *signature*
dr hab. inż. Małgorzata Zięba, prof. PG

Gdańsk, year 2025

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Keywords of doctoral dissertation in Polish: Branża lotnicza, raportowanie emisji, GRI, zarządzanie wrażeniem, studium kontrrachunkowości, techniki neutralizacji

Keywords of doctoral dissertation in English: airline industry, emissions reporting, GRI, impression management, counter-accounting, neutralisation techniques

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Summary of doctoral dissertation in Polish: Niniejsza rozprawa krytycznie ocenia odpowiedzialność branży lotniczej w kontekście raportowania emisji według standardów GRI za 2019 r. odpowiadając na dwa pytania badawcze: 1) W jakim stopniu emisje są ujawniane w raportach zrównoważonego rozwoju globalnego sektora lotniczego? 2) Jak konstruowana jest komunikacja wokół ujawnień emisji w celu uzasadnienia negatywnego wpływu branży na klimat? Aby uzyskać bardziej zrównoważony obraz ujawniania informacji, przeprowadzono studium kontrrachunkowości z użyciem analizy treści w celu oceny zgodności ze standardami GRI. Odpowiedzi na drugie pytanie badawcze udzielono za pomocą analizy tematycznej i analizy znaczeń gramatycznych tekstu. Wyniki wskazują na szeroką niezgodność analizowanych raportów linii lotniczych ze standardami GRI, co sugeruje, że rzeczywiste ujawnienia były mniejsze niż deklarowane. W kontekście zarządzania wrażeniem może to oznaczać próbę stworzenia pozoru pełnej przejrzystości i zgodności ze standardami GRI przy ograniczonej ich implementacji. Wyniki te podważają jakość raportowania opartego na GRI i kwestionują badania ilościowe wykorzystujące GRI, które pomijają zarządzanie wrażeniem. Dodatkowo linie lotnicze stosowały w raportach techniki neutralizacji w celu uzasadnienia emisji, które z perspektywy krytycznej mogą przyczyniać się do utrwalania problemu emisji, zamiast go rozwiązywać.

Summary of doctoral dissertation in English: This dissertation critically assesses the airline industry's accountability in the context of 2019 GRI-based emissions reporting through two research questions: 1) To what extent are emissions disclosed in the global airline industry's sustainability reporting? 2) How is the communication surrounding emissions disclosures constructed to justify the industry's adverse climate impact? To provide a more balanced view of disclosure, a counter-accounting study using content analysis was conducted to assess compliance with GRI Standards. The second question was addressed by combining thematic analysis with an examination of the text's grammatical meanings. The findings indicate that emissions disclosures were largely noncompliant with GRI, suggesting actual disclosure was less than claimed. In light of impression management, this may represent a form of concealment aimed at creating the impression of full disclosure and ceremonial conformity to GRI despite limited implementation. These findings question the quality of GRI-based reporting and challenge quantitative studies using GRI that overlook impression management. Additionally, the reports used neutralisation techniques to justify emission-intensive operations. When viewed as socially accepted arguments, these techniques may, from a critical perspective, contribute to perpetuating the emissions problem rather than solve it.

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To you – you know who you are – I will always be grateful to you.

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List of abbreviations and acronyms

CDA – Critical discourse analysis

CO_2 – Carbon dioxide

CSR – Corporate social responsibility

FY19 – Financial year 2019

GHG – Greenhouse gas

GRI – Global Reporting Initiative

IATA – The International Air Transport Association

NGO - Non-governmental organisation

NO_x – Nitrogen oxide

SFG – Systemic Functional Grammar

SR – Sustainability reporting

Chapter 1
Introduction

1.1. Background to the research

The severity of climate change caused by anthropogenic greenhouse gas (GHG) emissions for humanity and the environment has been repeatedly recognised in reports by the Intergovernmental Panel on Climate Change (IPCC). According to its previous report (IPCC, 2023), the human contribution to the global surface temperature reached 1.1°C above pre-industrial levels between 2011 and 2020, and if the current trend continues, global warming could reach 1.5°C as early as the 2030s. Limiting warming to this level is expected to reduce potentially irreversible impacts on natural and human systems, such as glacier melt, loss of coral reefs and other species, loss of human life due to heat, and regional impacts in industries such as agriculture, fisheries and tourism (IPCC, 2023).

The most significant developments in negotiations to mitigate climate change occurred in 2015 when the international community reached a consensus to limit global warming to well below 2°C, preferably to 1.5°C, in the legally binding Paris Agreement (UNFCCC, 2015, 2016). Despite the global recognition of climate change, achieving even the target of 2°C is very ambitious and requires a substantial reduction in GHG emissions (Raftery *et al.*, 2017) across every region and industry.

The climate change issue has been particularly challenging for airlines. The industry accounts for about 2% of all anthropogenic carbon dioxide (CO_2) emissions (ATAG, 2020b, 2024), which, according to some scenarios (e.g. Kharina et al., 2016), could triple by 2050 compared with pre-COVID-19 levels. These emissions may also be underestimated if the industry's indirect emissions are not accounted for (Gössling, Humpe and Sun, 2025). Moreover, airlines' CO_2-warming-equivalent emissions, especially nitrogen oxide (NO_x), have received increasing scientific attention as they may potentially warm the climate at three times the rate of those emissions associated with aviation CO_2 (Lee *et al.*, 2021). Combined, the industry's CO_2 and non-CO_2 effects may account for about 4–5% of global GHG emissions (Larsson *et al.*, 2018). At the same time, the industry has started to increase sustainability rhetoric in its various discourses (Gössling *et al.*, 2019). The term 'sustainable aviation' has become commonplace (Daley, 2010), although the term itself is arguably at odds with an industry that is likely to remain unsustainable for a very long time.

Despite the growing climate change controversy surrounding the airline industry, surprisingly little analysis has been conducted on how airlines respond to this debate in their corporate communications. After all, while the industry has experienced rapid growth in the past and has become an increasingly significant enabler of global transport, it has also shown decelerating fuel efficiency improvements, leading it to become one of the fastest-growing industries in the global economy in terms of GHG emissions (Kim, Lee and Ahn, 2019).

In this context, governments, investors and other stakeholders increasingly demand accountability concerning the environmental performance of emission-intensive industries (see Talbot and Boiral, 2015, 2018; Herbohn, Clarkson and Wallis, 2022). Most stakeholders cannot directly witness companies' emissions performance, so they must rely on corporate communications (Illia and Stefania, 2013). Within corporate communications, corporate reporting provides rich examples of how companies try to appeal to various stakeholders, from investors, clients and employees to (non-)governmental bodies and regulatory agencies (Domenec, 2012). In this context, corporate sustainability reporting (hereafter SR) seems to provide appropriate data for this dissertation to increase our understanding of how an industry that faces the challenges of being perceived as environmentally sustainable asserts accountability for its emissions performance and the disclosure of that information.

1.2. Research problem and research questions

The problem addressed in this dissertation is the lack of understanding regarding how global passenger airlines, as an emission-intensive industry, demonstrate accountability for climate impact through their SR.

The existing body of research on airline SR has already made noteworthy efforts to enhance our understanding of what environmental aspects airlines report (Chan and Mak, 2005; Hooper and Greenall, 2005; Mak and Chan, 2006, 2007; Mak *et al.*, 2007; Chen and Lin, 2009; Kemp and Vinke, 2012; Rudari and Johnson, 2015; Taskinsoy and Uyar, 2017; Yang, Ngai and Lu, 2020; Johansson, 2024). Some attention has also been paid to analysing factors determining why airlines report non-financial disclosures (Kuo *et al.*, 2016; Karaman, Kilic and Uyar, 2018; Kılıç, Uyar and Karaman, 2019). While such work is valuable and should be continued, given the constant evolution of global SR and the shifting socio-political context in which this development occurs, this dissertation examines airline emissions reporting from a different, underexplored perspective.

This research does not deviate from the shared premise of the commonly used theories (i.e. agency, legitimacy, institutional, and stakeholder theories) explaining SR, which postulate that companies disclose non-financial information to maintain corporate legitimacy by meeting stakeholder expectations (see Reverte, 2009; Gray, Owen and Adams, 2010; Borghei-Ghomi and Leung, 2013). However, it incorporates a critical accounting perspective by viewing SR as a means of presenting companies in a positive light (Onkila, Joensuu and Koskela, 2014). Given the emission-intensive nature of the industry and the lack of positive news in this area, it can be assumed that airlines find it difficult to provide honest accounts of their emissions performance.

Indeed, there is reason to assume, as evidenced later in this dissertation, that airlines may resort to various impression management strategies to limit or justify their negative emissions disclosure, thereby creating the impression that they align with stakeholder expectations (Merkl-Davies and Brennan, 2011; Herbohn, Clarkson and Wallis, 2022). In such a case, there is a risk that emissions reporting may potentially perpetuate the industry's emission problem rather than help solve it. Thus, this dissertation may provide a complementary perspective for interpreting the findings of many previous studies, which often assume business phenomena such as SR to be objective entities, while demonstrating the need for future research to consider the potential influence of impression management in non-financial reporting.

Accordingly, this dissertation **aims to critically assess the emissions reporting practices of global airlines to enhance our understanding of how an emission-intensive industry demonstrates its accountability for climate impact**. The specific research questions addressed by this dissertation, developed through the literature review presented in Chapter 2 (section 2.4), are as follows:

1) **To what extent are emissions disclosed in the global airline industry's sustainability reporting?**
2) **How is the communication surrounding emissions disclosures constructed to justify the industry's adverse climate impact?**

1.3. Justification for the research

This dissertation focuses on emissions reporting within the global passenger airline industry. SR and its provision of emissions reporting as a research area can be justified by the rising demand for both voluntary and mandatory reporting across different jurisdictions (KPMG, 2020; Van der Lugt, van de Wijs and Petrovics, 2020). Generally,

emissions disclosure serves as important information for shareholders to assess potential risks associated with the transition to a lower carbon economy while also being value-relevant information for stakeholders such as rating agencies and pressure groups (Herbohn, Clarkson and Wallis, 2022). Considering airlines increasing environmental impacts (Kharina, Rutherford and Zeinali, 2016; Kim, Lee and Ahn, 2019) and societal concerns over flying (see Gössling *et al.*, 2019), the demand for more meaningful emissions disclosure is likely to increase in this industry, highlighting the relevance of focusing this research specifically on airlines' emissions disclosure.

The credibility of non-financial disclosures has largely been associated with the use of externally established reporting standards, most notably the Global Reporting Initiative (GRI) (KPMG, 2013; Boiral and Henri, 2015), which has become the most widely used framework for SR (Brown, de Jong and Levy, 2009; Roca and Searcy, 2012; KPMG, 2017, 2020). It is worth noting that companies' non-financial performance may nevertheless be weak – if not questionable – even amongst companies that may be considered the best in reporting to stakeholders (Freeman *et al.*, 2010).

The research problem, outlined in the previous section, arises from the view that the number of disclosures made or claims of compliance with externally established reporting standards may not necessarily serve alone as a reliable basis for evaluating a company's non-financial performance – let alone its accountability for or reporting on sustainability issues. What is left undisclosed in sustainability reports is also important to explore, as is the way in which the meanings of (un)sustainability are constructed and conveyed in these reports. Even after following external reporting frameworks and standards, there remains much flexibility regarding how SR can be operationalised (Ringham and Miles, 2018), which allows a range of disclosure behaviour by corporations, from truth-telling to managing stakeholder impressions (Herbohn, Clarkson and Wallis, 2022).

SR should provide a transparent account of organisational non-financial performance and impacts, which requires firms to report both negative and positive aspects, also known as balance in non-financial accounting terms (GRI, UNGC and WBCSD, 2015; GRI, 2018a, 2022; CDP *et al.*, 2019). However, a growing body of research has questioned the credibility and transparency of SR instruments such as the GRI (Boiral, 2013; Talbot and Boiral, 2018; Talbot and Barbat, 2020), and some have criticised their use as a legitimisation tool (Hahn and Lülfs, 2014; Parsa *et al.*, 2018). However, such issues remain little researched in the context of the airline industry. This is particularly

true for airlines' emissions reporting, which appears to have received very little attention in prior literature, with several gaps to be addressed by this research.

First, although previous research has highlighted inconsistencies in airline SR practices, limited attention has been paid to how airlines actually apply reporting standards, such as the GRI (Mayer, 2018). In other words, while airlines may claim compliance with the GRI standards, prior research has made no attempts to evaluate the quality of these disclosures and the differences between airlines being genuinely transparent about their sustainability impacts and their possible box-ticking approach to such issues. Researching this is undoubtedly a challenging yet essential task, which the present dissertation undertakes by assessing not only the extent of what is (un)disclosed but also how compliant airlines are with the reporting standards they claim to follow.

Second, although the industry has been at the centre of climate change controversy – often due to accusations of greenwashing in their communications – prior research has paid limited attention to airlines' communication strategies in their SR (Mayer, 2018), which this research seeks to address. As noted earlier, given the emission-intensive nature of the industry and the lack of positive climate news, airlines may find truth-telling difficult and resort to other means to defend their legitimacy. Impression management seems to offer suitable premises for examining airlines' legitimisation strategies in this context. In the organisational context, it "refers to the way an organisation uses public communications, symbolic actions, and physical markers to influence […] audiences' perceptions of the organisation [… in] events that threaten organisational identity, image, reputation, or legitimacy, such as poor financial, social, or environmental performance; public controversies over environmental or social issues" (Merkl-Davies, 2016, p. 346). Although the use of impression management seems consistent in the critical literature of corporate SR, the nature of these techniques and how airlines may use them to manage stakeholder impressions of their emission performance has remained largely unexplored.

Third, highlighted by Talbot and Boiral (2018), more research is needed to analyse GHG disclosure compliance and quality from various information sources. This dissertation responds to this call by analysing the airline industry's compliance with the GRI Standards and, at the same time, contributes to critical accounting literature by focusing on impression management strategies that have been little-researched, namely, concealment, ceremonial conformity, and neutralisation techniques, through which

companies may seek to limit or justify their negative disclosure (see Talbot and Boiral, 2018; Talbot and Barbat, 2020).

Finally, in the wider context, this dissertation responds to a broader call from accounting scholars to examine SR from a critical perspective – traditionally dominated by what some describe as the business case (Brown and Fraser, 2006; Lehman and Kuruppu, 2017) or functionalist approach, which, according to Boiral and Henri (2015), is constrained by dubious assumptions regarding the objectivity of corporate reporting. More recently, there have also been calls for more pragmatic research to evaluate sustainability initiatives and infuse such research with a critical perspective (Lim, 2023). This dissertation's philosophical positioning, detailed in Chapter 3, resonates with the pragmatic research paradigm integrated with a critical perspective, through which it prioritises the aim of enhancing emissions reporting – by exposing potential contradictions in SR practices regarding accountability – over philosophical purity. Pragmatism is also shown in this dissertation in that it employs relatively underutilised research approaches to examine the use of impression management strategies in limiting and justifying negative disclosure, thereby complementing existing research methodologies in this field.

1.4. Methodology

The research methodology for the empirical part of this dissertation is presented in detail in Chapter 4, which builds upon the theoretical framework outlined in Chapter 3. A brief introductory overview of the methodology is provided here to offer readers an initial understanding of the methodological approaches used.

The empirical part of this dissertation was conducted in two phases, each aligned with one of the two research questions introduced earlier and operationalised through their respective research objectives. In short, Phase 1 first served the objective of identifying the major reporting frameworks commonly used in the global airline industry's emissions reporting. The sampling procedure (detailed in section 4.4.1) mapped the financial year 2019 (FY19) reporting activity of 339 airlines, using data from the International Air Transport Association (IATA) (2020) and Skytrax airline ranking organisation's lists. This procedure ultimately led this dissertation to narrow its empirical analysis to 19 airline companies' sustainability reports that claimed to report in accordance with the GRI Standards, which were then subject to further analysis to fulfil the objective of assessing the scope of the airlines' GRI-based emissions disclosures and the degree to which these disclosures comply with the GRI Standards. From the point of view of impression

management, non-compliance with the disclosure requirements could be construed as a potential indication of reporting bias, which involves concealing negative information while creating the impression of full disclosure (Merkl-Davies and Brennan, 2007; 2011). Such an occurrence could also be construed as symbolic management and, more specifically, as ceremonial conformity, by which companies create the impression of using salient practices such as the GRI – even if its actual implementation is limited (see Ashforth and Gibbs, 1990).

The claimed compliance of the reports with the GRI Standards on emissions disclosures was cross-checked using a counter-accounting approach. This approach, little used in scholarly research (e.g., Talbot and Boiral, 2018; Talbot and Barbat, 2020), can be defined as "the process of identifying and reporting information on organisations' significant economic, environmental and social issues that comes from external or unofficial sources […] in view of verifying, complementing or countering organisations' official reports on their performance and achievements" (Boiral, 2013, p 1037). In the present research, the process was undertaken by comparing the officially reported emissions disclosures with the disclosure requirements that companies adhering to the GRI (2018c) Standards are expected to follow. The counter-accounting approach was operationalised using content analysis, subject to an intercoder reliability check.

Phase 2 builds on Phase 1 more qualitatively by exploring how the reports construct their communication surrounding emissions disclosures to justify the industry's adverse climate impact. This phase initially used Braun and Clarke's (2006, 2012) approach to thematic analysis to fulfil the objective of identifying neutralisation techniques used in emissions disclosures to justify airlines' negative climate impact. In the corporate context, neutralisation techniques can be understood as a type of impression management through which disclosures of negative impacts are rationalised and legitimised through various socially accepted arguments (Boiral, 2016). The analysis was conducted deductively, in that neutralisation techniques found in previous literature (section 3.3.4) were used as a backdrop for their identification across the analysed corpus of the 19 airline companies' sustainability reports.

Unlike previous studies, this dissertation deviates from much of the existing research on neutralisation techniques in SR, which has typically relied on content analysis without engaging in a fine-grained analysis of language use (e.g., Boiral, 2016; Talbot and Boiral, 2018; Talbot and Barbat, 2020; Boiral *et al.*, 2022). Since neutralisation techniques have been argued to position corporations and their actions differently in the minds of

stakeholders (Hooghiemstra, 2000), and their implementation is considered to require linguistic devices to persuade those stakeholders (Kaptein and van Helvoort, 2019), the objective of this research was also to examine how specific linguistic devices in the text are employed in neutralisation techniques to position airlines in relation to climate impact. To fulfil this objective, thematic analysis was combined with critical discourse analytical methods based on Fairclough's (1992) text-level analysis, which draws on Halliday's Systemic Functional Grammar (SFG) (Halliday and Matthiessen, 2004), to enable a more fine-grained analysis of how responsibility for certain actions and outcomes is attributed in the observed neutralisation techniques.

1.5. Delimitations of scope

This dissertation critically assesses the emissions reporting of global passenger airlines whose primary business is to operate commercial flights. The assessment is primarily based on 19 sustainability reports that claim compliance with the GRI Standards. The decision to evaluate the airline industry's emissions reporting within the context of GRI was not straightforward. The aim was to analyse the industry's reporting practices as broadly as possible while simultaneously narrowing the research scope to a single reporting framework, namely the GRI Standards, which represented the most widely adopted SR framework in the industry for disclosing emissions in their FY19 reporting, as confirmed by this dissertation's sampling procedure. The assessment focuses on FY19 reporting, selected to represent a relatively recent point in time that, for the most part, would not be overshadowed by the COVID-19 pandemic, which severely disrupted the industry (Gössling, Scott and Hall, 2021). Accordingly, the scope of this study is limited to reports that claimed to disclose emissions in accordance with the GRI Standards, published (in English) by commercial passenger airlines for FY19.

1.6. Definitions

> "Definitions adopted by researchers are often not uniform, so key and controversial terms are defined to establish positions taken in the PhD research" (Perry, 1994, p. 10).

Since the concept of *accountability* has become central in SR literature (Spence, Husillos and Correa-Ruiz, 2010) and is also inherently part of this dissertation's research problem, it is necessary to clarify what accountability means. The meaning of accountability in SR literature has been broadly articulated through the work of Rob Gray (e.g., Gray, 2001; Gray, Owen and Adams, 2010; Gray and Herremans, 2012). In his

view (Gray, 2001), the concept is widely misused and misunderstood, which, simply put, means identifying one's responsibilities and then providing information about those responsibilities to stakeholders. In this dissertation, the concept relates to environmental accounting and, more broadly, to social accounting.

In the broadest sense, Gray *et al.* (1997) argue that social accounting encompasses the universe of all possible accounts, including informal ones. In this dissertation, its meaning is restricted to formal accounts, where accounting is understood as the discharge of organisational accountability, which, in turn, relates to the stakeholder's right to information about non-financial organisational outcomes (Gray *et al.*, 1997), which are disseminated through SR. In the context of SR, this dissertation subscribes to the notion of accountability presented by Spence, Husillos and Correa-Ruiz (2010), according to whom it refers to "the demand that corporations become, if not responsible, at least transparent about their own irresponsibility" (p. 78). Accountability, in this sense, involves "giving an account", which includes the account itself and the process of providing that account to stakeholders (Adams, 2004). For critical accountants such as Gray (2001) and Boiral (2013), as well as this dissertation, besides discharging accountability to stakeholders, the process of social and environmental accounting may, however, also be influenced by corporations' intentions to control stakeholders or justify their organisational actions and outcomes.

As mentioned above, accountability for non-financial organisational outcomes can be disseminated through *sustainability reporting* (SR), also known as non-financial reporting, which is why both terms are used interchangeably throughout this dissertation. There are varying views on what SR entails, some of which are further discussed in the literature review chapter (sections 2.2.3.-2.2.4). Since this dissertation's empirical part examines reporting conducted in accordance with the GRI Standards, it subscribes to its promoted definition, in which SR is understood as "an organization's practice of reporting publicly on its economic, environmental, and/or social impacts, and hence its contributions – positive or negative – towards the goal of sustainable development" (GRI, 2018a) (p. 3).

In SR, a *disclosure* relates to a particular aspect an organisation expects to report on. Standard-setting organisations develop and offer different reporting frameworks (see section 2.2.4) containing standardised disclosures. For example, the GRI Standards, which consist of numerous standardised disclosures, contain seven emissions disclosures, which are examined in the empirical part of this study. As described above,

the GRI requires organisations to disclose positive and negative aspects. This dissertation uses the term *negative disclosure* to refer to negative aspects that a company is expected to report. This definition draws on Hahn and Lülfs's (2014, cf. Einwiller and Carroll, 2020) definition of negative aspects in SR, which "include any corporate statement referring to factual and/or potential corporate conduct that had or has a (potentially) negative impact on the realization of sustainability [...] stemming from corporate operations [such as those] associated with [...] the release of harmful emissions" (p. 404). Considering the emission-intensive operations of airlines, their emissions disclosures are inherently considered negative disclosures in this dissertation.

A *stakeholder* of an organisation can be understood as "anyone who can influence or is influenced by the organisation" (Gray, 2001, p. 11; cf. Freeman *et al.*, 2010), and *shareholders* represent a group of stakeholders who are the owners of public corporations that are entitled to the returns (Freeman *et al.*, 2010). Stakeholder rights to information (such as emissions information) are determined, on the one hand, by law and, on the other hand, by quasi-law (e.g., corporate values and moral rights) (Gray, 2001). While SR and its provision of emissions reporting have been mostly voluntary, there is an increasing demand for voluntary and mandatory reporting across different jurisdictions (Van der Lugt, van de Wijs and Petrovics, 2020; Luo and Zhang, 2024). Different motivations may shape managerial discretion in disclosing non-financial information, such as emissions performance, which can be examined and understood through various theoretical perspectives – namely, economics, sociology, and critical theory. These perspectives are discussed in greater detail in this dissertation's literature review (section 2.2.6) and theoretical framework (Chapter 3).

1.7. Outline of the dissertation

Chapter 2 of this dissertation continues with a literature review divided into two main parts. The first part explores definitions of sustainability, corporate sustainability, and sustainability reporting and provides an overview of widely adopted SR frameworks for environmental and emissions reporting. It also examines managerial discretion in sustainability disclosure from economics, sociological, and critical perspectives and reviews two analytical approaches used in prior research to assess the transparency and rhetoric in reporting: counter-accounting and critical discourse analysis. The second part of the literature review focuses on the immediate context of this dissertation by presenting an overview of the airline industry and its emissions problem, followed by a systematic literature review of scholarly research on airline SR. The chapter concludes

by summarising and integrating the broader literature on SR with the reviewed literature on airline SR to unearth the dissertation's research questions.

Chapter 3 serves as a bridge between the dissertation's literature review and methodology by presenting the theoretical framework within which this research addresses the identified gaps in the literature on airline SR, notably the lack of studies assessing the quality of emissions disclosures and how airlines employ verbal communication to justify their negative organisational outcomes in this area. Firstly, the philosophical positioning of this research is discussed. Then, the chapter outlines how the concept of impression management – understood from economics, sociological, and critical perspectives – may be employed through concealment, ceremonial conformity and neutralisation techniques to limit or justify companies' negative disclosures, the use of which the empirical part of this dissertation examines in the context of airline emissions reporting.

Chapter 4 provides an overview of the methodology used in the dissertation's empirical part. It begins by describing the sampling procedure, which led this research to focus on airlines' emissions disclosures that claimed compliance with the GRI Standards. It then outlines how the counter-accounting procedure was adopted using content analysis to cross-check the compliance of the reported emissions disclosures against the GRI Standards, a breach of which could be an indication of concealment of information and construed as a ceremonial use of the GRI. Finally, the chapter explains how Braun and Clarke's (2006, 2012) approach to thematic analysis was employed in this research to identify and analyse neutralisation techniques. This analysis was combined with critical discourse analytical methods based on Halliday's SFG to understand better how corporate actors use certain text-level properties of language to persuade audiences about their organisational outcomes and position themselves and others in relation to these events. Accordingly, these analytical methods are also described in this chapter.

The empirical part of this dissertation was conducted in two distinct phases, each addressing one of the two research questions. Chapter 5 presents the results and interpretation of these phases, respectively. Finally, Chapter 6 further discusses this dissertation's findings in light of the existing body of knowledge and highlights the contributions made to this domain as well as implications for theory, practice and future research.

This chapter laid the foundation for the dissertation by introducing the research problem and questions. It has also provided a justification for the study and a brief overview of

the methodology, delimitations, and key definitions. Building on this foundation, the dissertation now proceeds to a detailed description of the research.

Chapter 2
Literature review

2.1 Introduction

The subject of analysis in this dissertation pertains to negative emissions disclosure, which is evaluated in the empirical part to enhance our understanding of how industries, particularly those deemed unsustainable, disclose and present such information in their sustainability reporting (SR). This study focuses on the airline industry context due to the climate-change controversy surrounding the sector. Accordingly, this literature review chapter consists of two main parts; the first pertains to the concepts and concerns associated with SR, and the following is more closely related to the airline context and its associated SR research. The chapter concludes with a summary of the reviewed literature and the research questions that emerged from it.

The first part of this chapter (section 2.2.) begins with sections regarding 'sustainability' and 'corporate sustainability' to better familiarise the reader with the overarching concepts within which corporations address and report their sustainability concerns. The section then provides an overview of the evolution of SR and its current commonly used reporting frameworks and standards, which provide standardised indicators and guidelines for environmental disclosure, including emissions. The section then highlights the issue of significant discretion organisations possess when releasing information regarding their actions and outcomes pertaining to sustainability and climate performance. Subsequently, the section explores the literature on management's discretion in disclosing sustainability information through the lens of economics, sociology and critical perspectives. Analysing these perspectives and their associated theories is crucial for understanding the motivations that may influence managerial decisions about the extent to which information is disclosed and how it is presented. Finally, a section provides an overview of approaches used in prior research to examine the truthfulness of companies' sustainability disclosures and the discourse built around these disclosures, namely the counter-accounting and critical discourse analysis (CDA) approaches.

The second main part of this chapter (section 2.3) begins by digging deeper into the context of this research by presenting a brief overview of the airline industry, describing its climate impact and its struggle to mitigate its emissions. It then proceeds to provide a review of scholarly research on airline SR, conducted using the principles of systematic literature review (Tranfield, Denyer and Smart, 2003), whose procedure is also outlined

in this part. This review demonstrates how the previous research has approached the research area of airline SR and what distinguishable concerns have emerged from this research. Analysis of these results, thus, helps to identify the deficiencies of the past research and better justify the research problem. The concluding part of this chapter (section 2.4) summarises and integrates the broader literature on sustainability reporting with the reviewed and analysed literature on airline SR to unearth this dissertation's research questions.

2.2 Concepts and concerns associated with sustainability reporting

2.2.1 Sustainability

Sustainability may be as old as human existence, even though its concept as a word with various meanings is considerably younger. Pinpointing who first used the term *'sustainability'* is also impossible. However, the first reported concerns about natural environment preservation were purportedly raised by a Saxon accountant Hans Carl von Carlowitz in his early 18th-century book, Sylvicultura Oeconomica, which argued that sustainable forest management entails providing nature with the time to regrow if it is to be exploited as natural capital (Karagiannis *et al.*, 2019). His book has been credited with laying the groundwork for the upcoming sustainability discourse (Gottschlich *et al.*, 2014).

Around the same time, Thomas Robert Malthus (1766-1834), who is regarded as the first economist to propose environmental limits, suggested that population growth would lead to diminishing returns on food production and result in lower living standards, ultimately halting further growth (Mebratu, 1998). Although unpredictable at the time, the fundamental shortcoming of his 'environmental limits' theory was that it kept the total production curve fixed, while in reality, technical innovations enabled a significant upward shift in the production curve (Mebratu, 1998). Indeed, the Industrial Revolution played a pivotal role in introducing engines powered by natural resources as the central means of production, leading to substantial material productivity gains, which significantly contributed to the global population surge from around 800 million in 1750 (Meadows, Meadows and Randers, 1992) to eight billion today (United Nations, 2022).

Since the 1960s, civil society actors started again raising concerns about the negative effects of limitless growth (Bansal and Song, 2017) in various milestone assemblies and conventions like the Club of Rome (1968), which reported the state of the natural

environment, and the United Nations (UN) Conference on the environment (1972) in Stockholm, which warned society against perpetuating the conflict between the continuous growth and the environment (Mebratu, 1998).

The following years saw the emergence of terms like ‘environment and development’, ‘development without destruction’, ‘environmentally sound environment’ and ‘eco-development’ (Mebratu, 1998). However, it was not until 1987 when the World Commission on Environment and Development report titled Our Common Future – also known as the Brundtland Commission report – mainstreamed the term ‘sustainable development’ (Laine, 2005; Roca and Searcy, 2012; Weaver, 2012; Antolín-López, Delgado-Ceballos and Montiel, 2016), which was famously defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland Commission, 1987).

Since the Brundtland Commission report, numerous interpretations have been made on the meanings of this loose definition. Some argue that the elusiveness of the definition per se is paradoxically the reason for its wide acceptance (Mebratu, 1998). Arguably, the definition can be interpreted in different ways, which, according to Laine (2005), makes it possible for different actors to adjust it for different purposes. As Mebratu (1998) points out, conceptions about sustainable development often reflect more of the different institutional, ideological or academic perspectives of those communicating about it rather than any commonly shared view.

The challenge of reaching a consensus on what sustainability means may also stem from confusion about the concept’s broad meaning and the principles that underlie a plan for its implementation (Owens, 2003). In this regard, Kassel (2012) points out that the interchangeable usage of the terms ‘sustainability’ and ‘sustainable development’ contributes to this confusion. In an attempt to clarify between the two, he emphasises that sustainability implies an ongoing unimpaired existence, whereas sustainable development can be seen as a pathway to achieving this state. He observes that different interpretations of these terms also stem from different ethical premises held by those discussing them. In business management literature, these premises are often presented in dichotomy where two broader values are discussed under the terms of ‘weak sustainability’ and ‘strong sustainability’ (Hediger, 1999; Bebbington, 2001; Laine, 2005; Kassel, 2012).

Weak sustainability, grounded in neoclassical capital theory, considers sustainability as an economic principle where human-made capital and the initial endowment of

natural resources must be maintained intact over time (Hediger, 1999, 2006). In this view, human interests are given prime consideration, and the natural environment is seen as a resource (Bebbington, 2001). No radical changes in society's lifestyles are deemed necessary (Laine, 2005), where economic development is seen as society's main priority (Meadowcroft, 2000) if not even the precondition for reaching sustainability, which can be achieved by relying on incremental adjustments in regulatory structures and technology to solve environmental problems (Bebbington, 2001).

Strong sustainability, in contrast to the human-centric view of weak sustainability, stems from the paradigm of ecological economics (Hediger, 1999, 2006). This perspective regards the economy as an open subsystem of the finite global ecosystem (Costanza, Daly and Bartholomew, 1991), emphasising that humans are an integral part of nature rather than a separate element (Laine, 2005). Accordingly, achieving sustainability may require fundamental structural changes in the current ways of living that require transparent, democratic, and participatory processes (Bebbington, 2001). In comparison to weak sustainability, strong sustainability holds that not all natural capital and human-made capital are substitutable for one another (Gallopin, 2003). Moreover, it acknowledges that the meanings of economic growth may need to be redefined or abandoned entirely and that technical solutions can also lead to adverse side effects (Bebbington, 2001).

Although weak and strong sustainability can be distinguished as separate positions, they can also be viewed as forming a continuum between which a spectrum of perceptions exist about the seriousness of environmental issues. The differences between weak and strong sustainability can also be viewed from the systems perspective. A system can be conceptualised as a set of interconnected elements or subsystems, ranging from abstract concepts like socio-economic systems to specific machinery or its individual components (Gallopin, 2003). From the systems perspective, all physical systems are considered open because their behaviour is influenced not only by internal factors but also by external elements from the environment of the system and impinging on it (input variables); on the other hand, the system itself generates an impact on its surrounding environment (output variable) (Gallopin, 2003).

Gallopin (2003) offers an insightful exploration of the contrasting perspectives on sustainability, delineating between weak and strong sustainability. In his view, the extreme stance of weak sustainability is depicted as profoundly humancentric, viewing

natural systems primarily as reservoirs of resources and sinks of various forms of waste and emissions. Within this framework, the sustainability of natural ecosystems is only regarded as valuable to the extent that it supports the continuity of the socio-economic systems. On a contrasting note, Gallopin (2003) describes the perspective of most strong sustainability as taking a very nature-centred stance, focusing on preserving global natural systems and recognising that their well-being is a prerequisite for society's sustainability.

Figure 1 visually represents the connections between nature and society, showcasing the two extreme approaches to sustainability from a systems perspective. The main distinction between the two appears to lie in how we perceive our relationship with nature. While both approaches recognise the interconnectedness of nature and society, the humancentric approach views them as distinct systems, whereas the nature-centred approach considers society as a subsystem of nature.

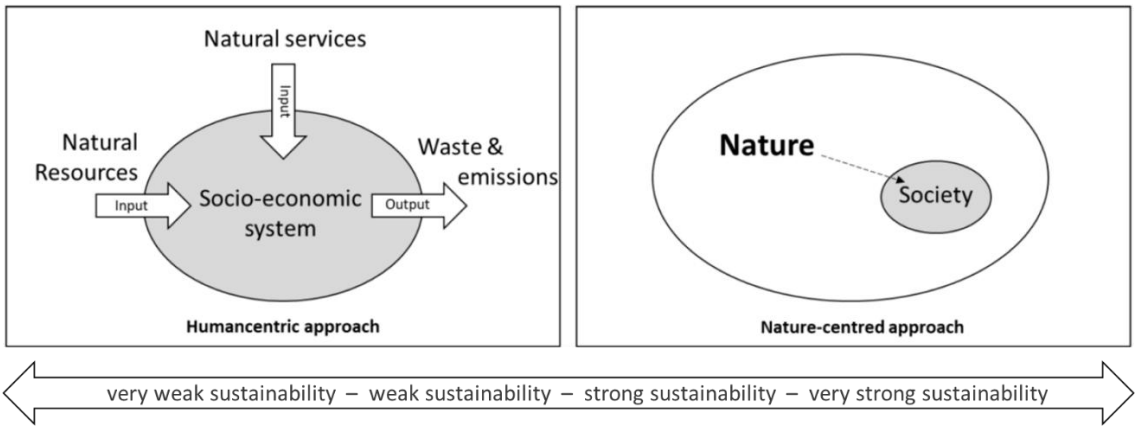

Figure 1 Very weak (humancentric) vs. very strong (nature-centred) approaches to sustainability.

Author's illustration adapted from Gallopin (2003)

Despite the different standpoints on the system, it is worth noting that the Brundtand Commission report also embraced the systems perspective on sustainable development by emphasising that economic development should operate within the constraints of natural systems to sustain all systems, i.e. if natural systems deteriorate, it would also diminish the sustainability of organisational systems (Bansal and Song, 2017). Hence, corporations and their actions should inherently be seen to be connected to natural systems, too.

2.2.2 Corporate sustainability

Although sustainable development was initially seen as a societal concept, it quickly became applied in the corporate context (Steurer *et al.*, 2005). Not long after the

Brundtland Commission report, the International Institute for Sustainable Development defined sustainable development on the corporate level as follows:

> "For the business enterprise, sustainable development means adopting business strategies and activities that meet the needs of the enterprise and its stakeholders today while protecting, sustaining and enhancing the human and natural resources that will be needed in the future" (IISD and Deloitte, 1992, p.11)

The above application of sustainable development is often referred to as the definition of corporate sustainability (Steurer *et al.*, 2005), which arguably builds on the Brudtland Commission report's definition of sustainable development (Antolín-López, Delgado-Ceballos and Montiel, 2016). Nevertheless, similar to sustainable development, there is no clear consensus on what corporate sustainability entails (Roca and Searcy, 2012). Steurer and his colleagues (2005) are of the opinion that understanding corporate sustainability, like sustainable development, largely depends on how society interprets it. While they view it more as a guiding model, others, such as van Marrewijk (2003), broadly define it as a voluntary company activity that integrates social and environmental concerns into business operations with stakeholders. For Schaltegger, Bennett and Burrit (2006), in turn, corporate sustainability is the desired outcome of corporate sustainable development, which, in their view, is the process aimed at reducing negative impacts and increasing positive effects for corporations in pursuit of a sustainable economy, environment, and society.

Also, in the corporate context, sustainability is often synonymous with corporate social responsibility or CSR (Kassel, 2012). While sustainability and CSR concepts originally focused on different areas – the first on environmental concerns and the latter on social aspects – they have become intertwined over time (Kassel, 2012; Karagiannis *et al.*, 2019). Despite their discussed overlaps and debates on their differences in academic circles (Bansal and Song, 2017), both academics and the public now commonly use these terms interchangeably in relation to corporate sustainability.

Possibly due to the plethora of interpretations and definitions, some scholars (e.g., Bebbington and Gray, 2000) highlight that businesses often struggle to understand what sustainability means in the corporate context. From a practical perspective, Shearman (1990) believes that sustainability should be regarded as a concept requiring a framework rather than a specific definition. In this regard, it seems to be generally accepted that corporate sustainability encompasses economic, social and environmental aspects (Antolín-López, Delgado-Ceballos and Montiel, 2016) – also referred to as the

triple bottom line (TBL) – a term introduced by Elkington (1997). Nevertheless, businesses may face challenges in assessing and demonstrating their impacts in these areas (Antolín-López, Delgado-Ceballos and Montiel, 2016; Morioka and de Carvalho, 2016). Despite such challenges, more and more companies have started reporting information about their sustainability to stakeholders over the past few decades (Gray, Kouhy and Lavers, 1995; Gray, 2001; KPMG, 2017, 2020).

2.2.3 Sustainability reporting

The origins of corporate sustainability reporting (SR) can be traced back to the 1970s when companies began incorporating non-financial information into their annual financial reports about matters such as product quality, employee opportunities, and contributions to local communities (Fifka, 2013). The demand for transparency in these matters can be linked to the growing globalisation during that time when large multinational corporations began controlling and moving resources internationally, resulting in concerns among the general public (Gray, Radebaugh and Roberts, 1990). Soon, companies started publishing stand-alone 'social reports' in response to external requests for this kind of information (Fifka, 2013).

The accounting literature and practitioners started increasingly including environmental aspects such as waste and energy, environmental impact assessments and accounting for environmental assets and liabilities in the late 1980s and early 1990s (Gulluscio *et al.*, 2020). The shift from disclosing social aspects to reporting environmental matters may have been shaped by the Brundtland Commission report addressing sustainable development and the increasing recognition of its relevance to the corporate world. Indeed, according to Fifka (2013), this shift was often attributed to companies realising that introducing environmentally friendly products and production methods can offer them competitive competitiveness. Subsequently, due to emissions regulations and agreements, especially the Kyoto Protocol of 1997, accounting methods aimed at assessing companies with liabilities in emission trading systems and taxation started to be incorporated into non-financial reporting (Gulluscio *et al.*, 2020).

However, it was not until the Millennium that companies started increasingly adopting the TBL approach to their non-financial reporting, after which the practice widely became known as (corporate) sustainability reporting (Fifka, 2013) and a mainstream practice for many corporations worldwide (Kend, 2015). A previous global survey by KPMG (2020) found that among the 250 largest global companies by revenue, SR increased from 35% in 1999 to 96% in 2020. The same survey also observed an increase in reporting from

24% to 80% among a sample of large and mid-cap films across the top 100 companies by revenue in each country or jurisdiction included in the survey.

Despite the prevalence of large corporations engaging in SR, the practice has remained voluntary in different parts of the world (Kend, 2015; Higgins and Coffey, 2016; D'Aquila, 2018), although the developments towards mandatory disclosure requirements introduced by (self-)regulatory actors have intensified (Evangelinos *et al.*, 2018; Van der Lugt, van de Wijs and Petrovics, 2020). For example, the European Commission has set a directive for non-financial reporting (NFRD), mandating large public-interest entities over 500 employees to disclose certain non-financial information from 2018 onwards (Hahnkamper-Vandenbulcke, 2021). To facilitate companies' reporting, the Commission published non-binding guidelines (EC, 2017), which it later extended to cover climate-related information (EC, 2019).

In general, SR can be conducted in conjunction with annual reporting or published as separate documents using titles such as 'Sustainability', 'Sustainable Development', 'Responsibility', 'Accountabilty', and 'Corporate Social Responsibility' reports (Roca and Searcy, 2012), which is also why different names for the same concept may be used in some parts of this dissertation. Another type of report, known as an integrated report, has also emerged, combining financial and sustainability information in a single document to demonstrate the connection between financial and non-financial information (Owen, 2013). Also, some argue that any document can qualify as SR if it outlines how the company addresses its sustainability challenges (Schaltegger, Burrit and Petersen, 2003). Others prefer stricter definitions, demanding the reports to disclose qualitative and quantitative data about the extent to which the company manages its economic, environmental, and social impacts (Daub, 2007), sometimes referred to as the TBL accounting (Lamberton, 2005). In this regard, the need for transparency is widely discussed in accounting literature, which requires disclosing both positive and negative impacts (Milne and Patten, 2002; Hahn and Lülfs, 2014; Rawlins, 2014; Einwiller and Carroll, 2020), also referred to as 'balance' in non-financial accounting terms (GRI, UNGC and WBCSD, 2015; CDP *et al.*, 2019).

It has also become increasingly advised that organisations should focus their reporting on issues that are significant for them and important to their stakeholders to keep the reporting relevant (GRI, UNGC and WBCSD, 2015). These significant issues are often referred to as 'material' – a term that is initially an accounting concept originating from financial reporting (Jones, Comfort and Hiller, 2015). In financial reporting, an issue is

considered material if its omission or misstatement affects the economic decisions of users (Dosal, 2013). In financial reporting, companies are legally required to demonstrate truthful and fair views on their financial statements, with the concept of materiality supporting this requirement (Edgley, Jones and Atkins, 2015). By contrast, SR has traditionally been voluntary across different countries, and the concept of materiality in such reporting can take a much broader scope, encompassing a wide range of issues relating to the TBL dimensions (Dosal, 2013). As a result, dealing with materiality in SR has been claimed to present challenges for companies because there is less consensus on what constitutes materiality in a non-financial context (Jones, Comfort and Hiller, 2015). Nevertheless, the rationale is that most G20 jurisdictions have started mandating companies to disclose their material non-financial information, of which climate-related information is clearly one (Herbohn *et al.,* 2022). However, directives such as the EU's NFRD allow organisations flexibility in deciding how to report the information (Hahnkamper-Vandenbulcke, 2021). The vacuum left by regulators and policymakers regarding how to report non-financial information such as emissions has been filled by non-government bodies that have established and regularly updated various guidelines, frameworks and standards (cf. D'Aquila, 2018; Unerman, Bebbington and O'dwyer, 2018; Hahnkamper-Vandenbulcke, 2021).

2.2.4 Sustainability reporting frameworks

Previously, KPMG (2020) recognised five major non-financial reporting organisations, which are the Global Reporting Initiative (GRI), the Sustainability Accounting Standards Board (SASB), the International Integrated Reporting Council (IIRC), the Climate Disclosure Standards Board (CDSB), and the CDP (formerly the Carbon Disclosure Project). This "group of five" has claimed to pursue alignment in areas of environmental, social and governance (ESG) disclosure and also indicated that their reporting frameworks align against the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) (CDP *et al.*, 2019). Any of these organisations' reporting frameworks invite organisations to disclose climate-related information. However, IIRC (2013) and CDSB (2022) are principle-based frameworks that do not contain specific disclosures that companies should report. On the other hand, the GRI, SASB, CDP and TCFD all include specific disclosures, including emissions, which is why the following overview focuses on them.

2.2.4.1 GRI

The GRI is the result of a joint effort of the United Nations Environmental Program (UNEP) and the US-based NGO Coalition for Environmentally Responsible Economies (CERES), aimed at improving the quality and utility of TBL accounting (Gulluscio *et al.*, 2020). Its first edition was published in 2000, with several editions amending its guidelines (Sisaye, 2021). In 2016, the GRI transitioned from guidelines to set the first global standards for reporting sustainability (Hahnkamper-Vandenbulcke, 2021). The GRI 2016 Standards consist of *universal standards*, which require the reporting organisation to cover context about the organisation and its management approach to topics identified material, and *topic-specific standards*, which contain specific disclosures in economic, environmental, and social areas (GRI, 2018a), including seven emission-specific disclosures (GRI, 2018c). According to GRI 2016 Standards, any reporting organisation that wishes to claim compliance with the standards must report on all topics the organisation identifies as material[1]. In other words, if the reporting organisation recognises its emissions as a material topic, it must report on it using the GRI's emission disclosures, consisting of a specific set of reporting requirements to disclose GHG emissions and related information. If the topic is not covered, a reason for omission must be stated (GRI, 2018a). It is worth noting that two main options exist for organisations to prepare their reports under the GRI 2016 Standards: Core and Comprehensive, which reflect different degrees of application of the standards. Organisations may also opt for a "GRI-references" claim, which can be used if a company wishes to report only on selected topic-specific impacts but is not looking to use the GRI Standards to provide a complete picture of its material topics and related impacts (GRI, 2018a).

Since its first edition, the GRI quickly became the most widely used and known framework for SR (Brown, de Jong and Levy, 2009; Nikolaeva and Bicho, 2011; KPMG, 2017, 2020), widely regarded as adding credibility to such reporting (KPMG, 2013; Boiral and Henri, 2015). In the previous KPMG (2020) survey, around two-thirds of N100 reporters used the GRI. Brown, de Jong and Levy (2009) explored the reasons behind the GRI's vast success in its early years, which, according to them, was based on its scope (TBL), flexibility (narrative and quantitative measures) and stakeholder base (various industries, types of organisations and movements), which made it an everchanging document produced not by the steering organisation but by the users for other users. However, the authors noticed that while thousands of organisations and

[1] According to the GRI (2018a) Standards, Material topics are those that may reasonably be considered important for reflecting the organisation's economic, environmental and social impacts, or influencing the decisions of stakeholders.

individuals had contributed to the development of the GRI, the proportion of non-governmental organisations (NGOs) and similar organisations had declined after its initial years. They argue that this was a tactical decision by the GRI to ensure the attendance of large global organisations. On that note, other authors have also raised doubts about whether the primary function of the GRI is to advance a sustainable world (Milne and Gray, 2013) or legitimise corporate actions (Parsa *et al.*, 2018). Indeed, strong evidence indicates that the prospect of material benefits constitutes the primary motivation for businesses to adopt the GRI (Levy, 2010), while using it may not necessarily reflect the actual practices of a company (Moneva *et al.,* 2006).

2.2.4.2 SASB

In contrast to the GRI, which focuses on a broad global audience, the target readers of SASB have mainly been U.S. investors (D'Aquila, 2018). Founded in 2011 as a non-profit organisation, SASB started providing industry-focused standards for U.S. companies to disclose sustainability information so that the standards did not represent additional reporting but focused on already mandated material information (Schooley and English, 2015). One of SASB's keys to success has been its adoption of an industry-by-industry approach to defining materiality as it relates to sustainability (Davies, 2013). The SASB standards, which comprise industry-specific disclosures, cover at least 77 industries, including airlines and their specific GHG emission disclosures (SASB, 2018). Despite the SASB's orientation toward the U.S., companies outside the North-America have also shown interest in adopting SASB, partly because many countries' jurisdictions do not specify particular standards or frameworks for SR (Flasher *et al.,* 2018). In 2020, SASB also announced its plan to merge with IIRC into one organisation to simplify SR in the U.S. and Europe – a development that may have potential policy implications for the regions' SR (Sisaye, 2021).

2.2.4.3 CDP

Formerly known as the Carbon Disclosure Project, CDP was founded in 2000 as a non-profit organisation (Rudari and Johnson, 2015) and is said to be the first initiative to standardise the measurement of climate change risks within the financial markets, helping publicly listed companies reporting on their climate information annually (Thistlethwaite, 2015). Unlike the abovementioned major reporting organisations, CDP facilitates reporting and rating, and its information is submitted to the CDP database instead of disclosed in corporate reports. CDP does this by gathering data about companies' sustainability performance on climate change by analysing questionnaires

submitted by companies whose participation is requested by institutional investors (CDP, 2021). Despite the CDP's success in achieving a vast response rate to its climate change questionnaire, criticism has also emerged about its disclosure quality. For example, Stanny (2013) pointed out that while numerous companies participate in CDP, the information disclosed through its questionnaire does not necessarily represent company-specific climate change-related information but rather general risks and opportunities on this topic. In responding to such challenges, CDP (2021) has designed additional sector-specific questions for high-impact sectors, including transportation and its associated air transport.

2.2.4.4 TCFD

TCFD originates from a meeting organised by the Financial Stability Board (FSB), held in 2015 in response to the request of G20 Finance ministers and central banks to discuss the impacts of climate change risks on financial stability (FSB, 2015). This meeting identified a plethora of existing climate disclosure schemes that lacked a consensus on the characteristics of effective disclosure. As a result, the FSB initiated TCFD to develop a set of recommendations, published in a report in 2017, to encourage financial institutions and non-financial companies to disclose information on climate change-related risks and opportunities (Hahnkamper-Vandenbulcke, 2021). The report structured these recommendations around four thematic areas: governance, strategy, risk management, and targets, which are supported by guidance on specific disclosures for all sectors and supplemented disclosures for certain sectors that organisations should include in their mainstream financial filings (TCFD, 2017). It is worth mentioning that the report identified the transport sector and its associated passenger airline industry among those that would benefit from supplemental guidance. It is also worth emphasising that while TCFD recommends disclosing Scope 1-3 GHG emissions[2], its focus is on reporting companies' financial risks and opportunities caused by their exposure to climate change, whose probabilities are based on scenario analyses. Therefore, it differs much from the above-described frameworks, which focus more on reporting corporations' impacts on climate change. Although the early implementation of TCFD is still much underexamined, this type of reporting may pose challenges for many companies, given that many

[2] "Scope 1 refers to all direct GHG emissions; Scope 2 refers to indirect GHG emissions from consumption of purchased electricity, heat, or steam; Scope 3 refers to other indirect emissions not covered in Scope 2 that occur in the value chain of the reporting company, including both upstream and downstream emissions. Scope 3 emissions could include: the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g., transmission and distribution losses), outsourced activities, and waste disposal" (TCFD, 2017, p. 63)

industries do not have experience in climate-related scenario planning (Manchester and Dwyer, 2020).

2.2.5 Discretion in (non)disclosure

As seen above, stakeholders can access companies' sustainability information when reported as part of certain SR schemes. However, companies' decision to make their sustainability outcomes public using these instruments does not necessarily mean that they are able or willing to prepare their emissions disclosure in line with the reporting schemes. Indeed, frameworks such as the GRI and TCFD have been contested to allow for flexibility in their application without creating enforceable duties (Clune and O'Dwyer, 2020). Additionally, Herbohn, Clarkson and Wallis (2022) notice that while the reporting organisations' jurisdictions may mandate companies to disclose material information such as emissions, the nature of the disclosure is often unregulated. In their view, this considerable discretion afforded to organisations in reporting allows a range of disclosure behaviours by managers, which on one end represents truth-telling about the organisational actions and outcomes and, on the other end, the act of managing external parties' impressions of these matters.

Prior literature provides evidence consistent with the scenario that companies manipulate their disclosures to control stakeholder impressions of their sustainability, including GHG performance. For example, Talbot and Boiral (2013) interviewed large Canadian emitters and auditors, allowing them to identify factors such as complexities in GHG measurements, lack of transparency and unreliable verification mechanisms that can affect trust in business inventories. The authors concluded that such findings may even question the validity of many quantitative studies that use secondary data on corporate GHG emissions. Other qualitative research has examined the rhetorics used in conjunction with climate-related disclosure. For example, Talbot and Boiral (2018) unveiled impression management techniques used in companies' non-financial reports in the energy sector, contributing to our understanding of how companies may rationalise or conceal their impacts to limit negative GHG disclosure. In another study, Ihlen (2009) found that companies such as Ford, BP, Chevron, and General Motors used the terms 'climate', 'global warming', 'Kyoto/IPCC', and 'Carbon/CO2' extensively in their reports – although these companies were among the "America's worst greenwashers". Dragomir (2012), in turn, scrutinised five major European oil and gas companies' sustainability reports, finding that the reports contained inconsistencies with the adopted GHG Protocol methodology the companies were claiming to follow.

In more recent studies, Wedari, Jubb and Moradi-Motlagh (2021) identified signs of what they refer to as 'greenwashing' in the climate-related disclosures of firms mandated to report their emissions under the Australian National Greenhouse and Energy Reporting Act (NGER) scheme during 2016 and 2017. More specifically, their research uncovered limited climate-related disclosures from companies with substantial GHG emissions, while companies that experienced an increase in GHG emissions exhibited a rise in their climate-related disclosures. In another study, Pitrakkos and Maroun (2020) examined the quality of carbon disclosure in large South African industry companies' integrated reports based on a data checklist in areas such as carbon emission, reduction and intensity of GHG, and the level of assurance over GHG disclosure. Their research indicated, among other things, that most GHG disclosure was included in narrative/qualitative parts of the reports, making the comparison between the reports difficult and the disclosure therein more subjective. They also noted many reports containing mission statements, policies on climate change and definitions based on the GRI without their substantiation – making the disclosure more symbolic than substantive.

2.2.6 Theoretical approaches to understanding disclosure behaviour

As shown above, the literature holds evidence of issues related to transparency, quality, and verification of sustainability disclosure and the ceremonial use of externally established authority in this context. Depending on the theoretical perspective adopted, different motivations may play a role in corporations' discretion in what information is released and how it is presented (Herbohn, Clarkson and Wallis, 2022).

In addition to corporate actors, various stakeholders from scholars, governments, public policymakers, socially responsible investors, trade unions, and environmentalists have shown interest in SR (Brown and Fraser, 2006), and different individuals and groups may have very different departing points to understanding how SR should be practised. Thereby, the views in literature are grounded on various theories (e.g. agency theory, legitimacy theory, institutional theory, stakeholder theory, or critical theory). Respectively, the past literature has provided multiple categorisations of these diverging views and their associated theories that help us understand the motivations and consequences of reporting behaviour (cf. Brown and Fraser, 2006; Cullen and Whelan, 2006; Merkl-Davies and Brennan, 2011; Hansen and Schaltegger, 2016; Lehman and Kuruppu, 2017).

Merkl-Davies and Brennan (2011) classified the diverse theoretical approaches in the field by differentiating between economics, sociology and critical perspective. The following overview analyses these perspectives and supplements them with views

brought forth by other scholars. As Merkl-Davies and Brennan (2011) point out, alternative perspectives should not necessarily be seen as competing explanations but as different ways of seeing the same phenomenon. Understanding the different perspectives matters as they can "have profound implications for the social realities we construct, embed or seek to change" (Brown and Fraser, 2006, p. 104). Therefore, exposure to different perspectives and their associated theories should be considered a necessary step in understanding the underlying assumptions shaping how SR is approached and conducted.

2.2.6.1 Economics perspective

The economics perspective views SR mainly from its benefits to businesses and shareholders (Merkl-Davies and Brennan, 2011). From this perspective, managers' (i.e., report preparer) reporting behaviour is often explained using economics-based theories, particularly agency theory (Merkl-Davies and Brennan, 2007).

Agency theory views the firm as a nexus of contracts between various economic agents who act opportunistically, and sustainability disclosure in this context may prove useful in determining debt contractual obligations, managerial compensation contracts, or implicit political costs (Reverte, 2009). In this context, shareholders may, for instance, be interested in companies' environmental information, such as historical emissions data, as they seek to evaluate companies' potential risks in their transition to a lower carbon economy (Herbohn, Clarkson and Wallis, 2022). They take it for granted that managers act in their self-interest and rationally respond to incentives shaped by compensation contracts, the market for corporate control and other governance mechanisms (Merkl-Davies and Brennan, 2011). From the management's point of view, managers share positive information with shareholders to increase their benefits, such as compensation tied to climate-related key performance indicators (Herbohn, Clarkson and Wallis, 2022).

Although this logic may suggest that SR would yield positive outcomes because managers are incentivised to report positively on sustainability efforts to align with the interests of shareholders, this may not necessarily be the case. As Merkl-Davies and Brennan (2011) argue, the decision-making in releasing information from the economics perspective is based on instrumental rationality, which focuses on achieving the best possible means to an end rather than the outcome itself. Because negative organisational outcomes can create conflicts of interest between managers and shareholders, managers may intentionally distort readers' perceptions of the outcomes (Merkl-Davies and Brennan, 2011). In the context of climate-related information, this can

mean, for example, concealing negative climate change outcomes by obfuscating them or emphasising the positive climate outcomes (Herbohn, Clarkson and Wallis, 2022).

Agency theory also postulates that managers share information with shareholders to address agency problems stemming from information asymmetry, wherein managers are perceived to possess superior knowledge about the company's performance compared to shareholders, leading to shareholder uncertainty about managers' alignment with their interests (Eisenhardt, 1989). In this context, shareholders may consider managerial optimism in outcome announcements biased if the information is hard to verify (Merkl-Davies and Brennan, 2011). Therefore, it is not surprising that studies that have examined and explained companies' voluntary environmental disclosure drawing on agency theory have indicated that companies' discretion to use externally established standards like the GRI (Karaman, Kilic and Uyar, 2018) or third-party audits (Villiers and Staden, 2010) is motivated by their intent to lower the information asymmetry. In this regard, using externally established authority has been broadly identified as a source of enhanced credibility in companies' non-financial reporting (Higgins and Walker, 2012; KPMG, 2013; Rajandran and Taib, 2014; Evangelinos *et al.*, 2018; Ringham and Miles, 2018).

While some scholars have criticised agency theory for its narrow focus on monetary considerations among managers and shareholders (Reverte, 2009; Merkl-Davies and Brennan, 2011) and its lack of attention to the broader societal context (Traxler, Schrack and Greiling, 2020), others have made arguments that the prevailing SR practices often reflect such a limited view. For example, while Brown and Fraser (2006) and Lehman and Kuruppu (2017) recognise that the prevailing SR practices are often characterised by a 'win-win' ethos, discussing its benefits for both business and wider stakeholders, they note that the dominant approach views SR from the standpoint of businesses and shareholders. Similarly, Onkila, Joensuu and Koskela (2014), in line with Brown and Fraser (2006), assert that SR is largely perceived as an extension of the management toolkit for creating shareholder value. Moreover, Lehman and Kuruppu (2017) argue that the dominant perspective of SR endorses the neoliberal business paradigm, which, among other things, focuses on procedural performance and supports ideas such as voluntary reporting and incremental change. Such views are also often reflected in studies conducted by business case researchers who seek to explore ways in which performance measures and benchmarking techniques can be developed (Brown and Fraser, 2006) or how the provision of better information can be used to augment

business operations, such as attaining better efficiency or better decision-making, such as reducing environmental litigation (Lehman and Kuruppu, 2017).

2.2.6.2 Sociology perspective

As mentioned above, the economics perspective, with its underlying agency theory focusing on businesses and shareholders, arguably offers a narrow view of SR insofar as many potential users of environmental information, such as pressure groups (e.g. Greenpeace), do not act in capital markets (Reverte, 2009). By contrast, the sociology perspective regards sustainability reporting as determined by influences exerted by various stakeholders or society at large and that the rationality underlying its practice is based on substantive rationality, concerned with the ends pursued for their own sake, such as respect for the environment (Merkl-Davies and Brennan, 2011) and, hence, addressing pollution.

According to Merkl-Davies and Brennan (2011), sociological explanations of discretionary disclosures are often drawn from legitimacy, institutional, and stakeholder theories and from the assumption that managerial disclosure behaviour reflects the concerns of stakeholders and serves as a way to establish organisational legitimacy. These three theories should not be seen as competing but rather complementing each other in reaching interpretations of environmental accounting. In essence, all these theories aim to elucidate how organisations strive for their survival and growth, and all of them centre around the concept of organisational legitimacy (Chen and Roberts, 2010), which in simple terms means the conformation with social expectations (Palazzo and Scherer, 2006).

From the three abovementioned theories, legitimacy theory appears to provide the broadest macro-level perspective for examining and explaining the practice of sustainability reporting. According to this theory, no organisation has an intrinsic right to operate without its respective society's approval (Hahn and Kühnen, 2013), which is why organisations continuously seek to align their operations with society's changing bounds and norms (Brown and Deegan, 1998). In other words, a social contract exists between the organisation and society in which the organisation seeks to perform socially desired actions in return for society's approval of its operations (Guthrie and Parker, 1989). Following this logic, an organisation may practice SR to demonstrate its alignment with societal expectations and, in this way, maintain its contract (Chen and Roberts, 2010). However, if the organisation deviates from society's expectations, it may be subject to increased scrutiny, and its contract to operate may be questioned (Deegan and Rankin,

1996). This is especially relevant for topics such as climate change because of its prominent presence in public debates (Herold, 2018). Such pressure is likely higher for larger firms because of their greater public visibility (Nikolaeva and Bicho, 2011). Indeed, prior studies have used legitimacy theory to explain why larger companies are more likely to apply externally established reporting instruments such as the GRI (Legendre and Coderre, 2013; Martínez-Ferrero *et al.,* 2015).

While legitimacy theory seems capable of explaining the desired output of SR (Hahn *et al.,* 2015), which appears to be the reconciliation of the organisation's values with those held by society at large, it may be insufficient alone to explain how congruency is pursued. To that end, Chen and Roberts (2010) propose two theoretical perspectives to understand how congruence can be achieved: 1) institutional legitimacy, which is related to institutional theory, and 2) strategic legitimacy, which can be linked with stakeholder theory.

From the perspective of institutional theory (Meyer and Rowan, 1977), organisations can achieve congruence through coercive (e.g. obeying law), normative (e.g. following standards), and mimetic (e.g. copying others) isomorphic mechanisms, which respectively demonstrate conformity with institutionalised regulative, normative and cultural-cognitive patterns (Scott, 2013). Accordingly, organisations operating in countries with similar institutional environments are expected to present similar behaviour patterns, such as homogenous forms of SR (Garcia-Sanchez *et al.,* 2016). Prior literature has found evidence to support these postulations. For example, Jensen and Berg (2012) found the level of economic, environmental and social development, the degree of national corporate responsibility and the value system of the country of origin to be relevant determinants of companies conducting integrated reporting. In another study, Kılıç *et al.* (2021) found that the level of countries' sustainable development influenced Fortune 500 companies' decision to issue integrated reports. Prior studies have also identified country-level sustainability factors influencing the adoption of certain SR instruments. For example, Garcia-Sanchez, Cuadrado-Ballesteros and Frias-Aceituno (2016) observed that countries' normative and institutional structures have an important impact on large international companies' GRI reporting.

Even if the implementation and extent of SR are likely to be associated with the institutionalised sustainability-related regulative, normative and cultural-cognitive patterns and their imposed pressure, the institutional theory may be insufficient in explaining some of the dynamics associated with such reporting. Herold (2018), for

instance, points out that while isomorphism may lead to rather similar SR practices, particularly in the same industries, institutional theory is limited in explaining heterogeneity in reports and the influence of different stakeholders in the field. On that note, he believes that stakeholder theory can complement our understanding of how organisations act and adapt to institutional logic in the context of SR.

In stakeholder theory, Freeman (1984) asserts that organisations should be managed in compliance with the interests of many stakeholder groups and individuals who can affect or be affected by the organisation. The theory overlaps with legitimacy theory in that both perceive the organisation as part of a broader society with interconnected influences. However, where legitimacy theory discusses societal expectations in general, stakeholder theory recognises that different stakeholder groups have different views about how organisations should operate, which is why several social contracts are 'negotiated' with different stakeholders rather than just one (Deegan and Blomquist, 2006). Accordingly, stakeholder theory suggests that the function of SR is to manage different stakeholder groups' information needs in society (Reverte, 2009), allowing various stakeholders to monitor and influence corporate actions.

However, even some proponents of the stakeholder approach see challenges with the above view. While the literature on stakeholder influence on SR considers the reporting per se as a function of a plurality of interests and that these influences are interconnected (Freeman *et al.*, 2010), Brown and Fraser (2006) note that different stakeholders may have very different views on what information is relevant to be disclosed on organisational outcomes or, indeed, what constitutes even 'good' or 'bad' performance in this regard. Moreover, responding to the needs of all stakeholders may not be possible, and one of the views embraced in the literature is that organisations seek mainly to satisfy the needs of those they deem powerful, i.e. those that control the resources necessary for the organisation's operations (Deegan and Blomquist, 2006).

It should be noted that several interpretations and classifications exist for stakeholder theory, of which two stand out: the ethical and managerial branches (Fernando and Lawrence, 2014). While the underlying premises of the ethical branch assume that organisations owe accountability to various stakeholder groups (Deegan and Blomquist, 2006; Gray, Owen and Adams, 2010), the limitation of this perspective is the managers' challenge to treat all stakeholders fairly (Fernando and Lawrence, 2014). Therefore, the ethical perspective may have little descriptive or explanatory power in the context of SR (Gray, Owen and Adams, 2010). On the other hand, the managerial branch of stakeholder theory views the world from the perspective of corporate management,

which seeks to manage its powerful stakeholders to advance the organisation's interest through various strategies (Gray, Owen and Adams, 2010). In this regard, Ashforth and Gibbs (1990) recognise two general approaches for seeking legitimacy: 1) substantive management and 2) symbolic management.

In parallel to the previously described substantive rationality, Ashforth and Gibbs (1990) explain substantive management entailing activities that create real material change in the organisational goals, structures and processes or socially institutionalised practices, including corporate reporting. They argue that this may simply occur by meeting the performance expectations of those stakeholders upon which the firm depends for critical resources. In addition to the favourable organisational outcomes, companies can be understood as acting according to the substantive approach when they respond to normative, coercive or mimetic isomorphism by increasing the quantity and quality of their environmental disclosure due to stakeholder demand, increasing environmental awareness in society or environmental reporting practices by other firms (Merkl-Davies and Brennan, 2011). In emission-intensive industries, companies may be particularly concerned about stakeholder groups such as institutional investors, rating agencies, and pressure groups, who could react unfavourably to the firm's climate change performance or its reporting by withdrawing capital, issuing unfavourable analyst reports, reducing credit ratings, or withdrawing community support (Herbohn, Clarkson and Wallis, 2022).

In symbolic management, the focus is on the representations by which firms present their actions to others (Sandberg and Holmlund, 2015). Although symbolic management is often necessary to inform stakeholders about the organisation's substantive management efforts, firms may prefer to employ symbolic assurances only since it usually preserves their flexibility and resources (Ashforth and Gibbs, 1990). In other words, "[r]ather than actually change its ways, the organisation might simply portray – or symbolically manage – them so as to appear consistent with social values and expectations" (Ashforth and Gibbs, 1990, p. 180). As part of such strategies, emission-intensive companies may, for example, espouse externally established goals, such as statements of support for the TCFD and use ceremonial conformity, such as reporting to the CDP while not improving their emissions performance (Herbohn, Clarkson and Wallis, 2022). Additionally, companies under legitimacy-threatening situations may be prone to provide normalising accounts, which, according to Merkl-Davies and Brennan (2011), consist of "verbal remedial strategies, such as justifications, excuses and apologies, whose purpose is to repair organisational legitimacy and reputation" (p. 427). Such strategies can also be classified as protective or defensive impression

management, which will be discussed in more detail as part of this dissertation's theoretical framework (Chapter 3).

2.2.6.3 Critical perspective

Regarding the last perspective covered in this chapter, theorists from the critical quarters often see realities or meanings as socially constructed (Scotland, 2012) through language (Berger and Luckmann, 1966; Fairclough, 1992). In this view, the way we understand even the concept of sustainability is continuously (re)constructed through the discursive actions of various actors (see Laine, 2005; Milne, Kearins and Walton, 2006). Since corporations can be understood as powerful social actors, their disclosures also construct the meanings of sustainability and, therefore, they have the power to influence society's perceptions and understanding of sustainability (Fischer and Forester, 1993; Phillips and Hardy, 2002) by managing their communication with stakeholders (Hooghiemstra, 2000).

Following the above thought, Merkl-Davies and Brennan (2011) posit that, in the context of SR, the underlying rationality for discretionary disclosure is based on the assumption that rationality itself, which can be understood as providing sets of rules for meaningful actions, is also socially constructed. The authors elaborate that as corporate actors must be seen as acting rationally, they may use corporate reporting to construct the impression that they are rational entities, often by presenting their organisational outcomes and events in such a way that they result from deliberate, reasoned and goal-oriented behaviour.

The theoretical origins of this perspective stem from critical theories (Merkl-Davies and Brennan, 2011), which are a family of theories that aim to critique and transform society by integrating normative perspectives with empirically informed analysis of society's conflicts, contradictions, and injustices (Celikates and Flynn, 2023). Critical studies on SR are often interested in investigating the truthfulness and authenticity of reporting (Lehman and Kuruppu, 2017) and highlighting its socially constructed nature, rhetorical purposes and effects (Livesey and Kearins, 2002). The following section will review two critical approaches to examine and address these contradictions: counter-accounting and critical discourse analysis (CDA).

2.2.7 Critical approaches to analysing sustainability reporting

2.2.7.1 Counter-accounting

Commonly, counter-accounts can be understood as alternative representations of particular organisations that convey information about their social, economic and environmental impacts (Apostol, 2015; Vinnari and Laine, 2017). These accounts create challenging stories from those communicated by business organisations (Gray and Herremans, 2012) by combining the target corporations' accounts with external accounts to problematise the conventional notions of accounting (Vinnari and Laine, 2017). The external sources used in counter-accounts can range from journals, magazines, and (project) reports on the target corporations (Gallhofer *et al.*, 2006) to industry watchdog data (Gray and Herremans, 2012) and other data retrieved from newspapers, NGOs and governmental and extra-financial agencies (Macellari *et al.*, 2021). As a result of such diverse scrutiny, counter-accounts are argued to provide a more comprehensive and balanced picture of the target corporations' actions and sustainability performance (Gray and Herremans, 2012; Apostol, 2015).

While counter-accounting is rather a new research approach in academia, civil society organisations have already created counter-accounts for a long time (Gallhofer *et al.*, 2006) under various names such as "social audits" and "shadow accounts" (Apostol, 2015; Tregidga, 2015). These accounts have traditionally been produced by or on behalf of (groups of) individuals impacted by consequences caused by others (Denedo and Thomson, 2017). The practice has been essential, particularly to the social movement processes and practices (Tregidga, 2015) of campaigners and activists (Gallhofer *et al.*, 2006) and NGOs such as Corporate Watch and the Business and Human Rights Resource Center (Boiral, 2013). One of the central aims of counter-accounting projects has been to present a counterforce to neoliberal hegemonic discourses in attempts to engender social change (Vinnari and Laine, 2017; Ferry and Slack, 2022), which is why the practice has often been perceived as a means of serving opposing interests (Gallhofer *et al.*, 2006). However, counter-accounts can also potentially increase the knowledge set and, as a result, stimulate dialogue, coalition building and conflict resolution. For example, Denedo and Thomson's (2017) research on an international NGO's campaigns against oil companies in Niger Delta showed how counter-accounts can make corporations' adverse actions visible to those with power and give voice to indigenous communities, pressuring the government to reform governance processes. Although such voices can be subjective, they can form a good basis for the development of emancipatory accounting. In this regard, Apostol's (2015) case study on civil society's

opposition to a mining project in Romania demonstrated how counter-accounts, when analysed against corporate sustainability reports, can play a key role in evidencing questionable disclosure practices, such as selectivity and silencing of information.

Today, it has become known that counter-accounting can have an important place in different contexts (Vinnari and Laine, 2017), including scholarly research (Apostol, 2015). Accounting research, in particular, has confirmed its relevance in drawing attention to the credibility of corporate reporting practices (Macellari *et al.*, 2021) and called for the need for counter-accounting studies to foster democracy and facilitate more participatory forms of social organisation (Ferry and Slack, 2022). Regardless of such calls, counter-accounting has remained a relatively rarely used approach in scholarly research, especially in the field of non-financial reporting (Gallhofer *et al.*, 2006; Boiral, 2013; Vinnari and Laine, 2017; Talbot and Boiral, 2018; Macellari *et al.*, 2021).

Prior studies that have used the counter-accounting approach to examine SR practices have highlighted disclosure deficiencies in reporting. In this regard, Adams (2004) was one of the first to explore a possible reporting–performance portrayal gap (Tyson and Adams, 2020) by comparing reports of a multinational company against information from other sources. Her findings showed two very different pictures emerging from these sources, which led to the conclusion that the company's reports were not demonstrating a high level of accountability to key stakeholders on sustainability issues. Her case study also raised concerns about the potential misuse of external reporting guidelines and standards as legitimising tools and insurance policies. Similar concerns were raised in Boiral's (2013) counter-accounting study, which compared significant news events on sustainability issues associated with energy and mining sector companies against company-produced sustainability reports that claimed high application levels of the GRI framework. His findings indicated that firms exhibited very little inclination to report significant negative events clearly or report them at all, which is inconsistent with the GRI's reporting principles that require completeness and stakeholder inclusiveness in disclosure construction. Similar analysis conducted by Macellari *et al.* (2021) demonstrated that incomplete disclosure or omission of significant adverse events are also common in reports associated with LEAD companies recognised for their leadership in sustainable development goals (SDGs) and excellence in communication practices.

Further concerns relating to the effectiveness of the GRI reporting were raised by Talbot and Barbat (2020), whose conducted counter-accounting was realised by comparing mining companies' reported information on water management performance with the

disclosure standards contained in the G4 version of the GRI guidelines. Their study revealed that the examined mining companies had a strong inclination for non-compliance with the GRI guidelines and that the external verification did not impact the quality of the disclosure. In a similar study, Talbot and Boiral (2018) assessed the quality of GHG information disclosed in energy sector companies' sustainability reports that claimed compliance with the G3 version of the GRI guidelines. Their analysis also exposed a significant proportion (93.3%) of the reports demonstrating nonconformity with the GRI requirements, raising concerns about the quality of external assurance processes and how well-informed decisions stakeholders can make on companies' sustainability performance based on the GRI reporting.

In summary, the existing literature has exemplified various issues associated with company-produced accounts on their sustainability performance and demonstrated that a variety of alternative accounts are needed to counter corporate communication (see Tregidga, Milne and Kearins, 2014; Vinnari and Laine, 2017). While the development of counter-accounts has been encouraged for a long time in civil society, arguments have started to build that academia should also play its role in exposing alternative views and becoming part of this dialogue (e.g. Paisey and Paisey, 2006; Tregidga, 2015). Indeed, in agreement with Denedo and Thomson (2017, p. 1314), "non-action combined with poor or manipulative accountability … is more likely to perpetuate problems rather than resolve them for the common good". With this in mind, one of the major problems of our time is the accountability for human-induced climate change (see Hoegh-Guldberg *et al.*, 2018), and in this conjunction, the need for researching GHG disclosure, its scope and accuracy are highlighted in prior literature (Milne and Grubnic, 2011; Talbot and Boiral, 2018). Nonconformities in GHG disclosure can especially compromise the credibility of corporate climate commitments, and to this end, counter-accounting could represent a source of institutional pressure, encouraging companies to improve their reporting in various high-impact industries (Talbot and Boiral, 2018).

2.2.7.2 Critical discourse analysis

Arguably, all business communication has the rhetorical purpose of portraying a company in a way that promotes its interests (Font, Elgammal and Lamond, 2017). While people have relative freedom to interpret such communications, their freedom may be limited by certain functions of the properties in the text that aim to persuade or, in other ways, influence its readers (van Dijk, 1995). Studies conducted using the CDA approach are particularly interested in making sense of how social construction creates social realities that can benefit some actors (Phillips and Hardy, 2002).

CDA can be seen as a philosophical approach to research (Laine, 2005) with many variants (Livesey and Kearins, 2002). Nonetheless, the central concept in all CDA studies is that language serves as more than a mere 'reflection' of reality – it is through which social actors can construct and influence the world around them (Keenoy, Oswick and Grant, 1997). Respectively, CDA studies can help in comprehending how corporations position and portray themselves within specific social contexts at given times (Rajandran and Taib, 2014)

A variety of CDA studies have examined corporate SR from different angles and regions worldwide. For instance, Tregidga, Milne and Kearins (2014) conducted a critical reading of New Zealand-based reports from 1992 to 2010, analysing the evolution of organisation identity in relation to sustainable development in terms of 'what' was reported and 'how'. Their analysis revealed that during the 1990s, organisations primarily portrayed themselves as environmentally responsible and compliant by showcasing their contributions to community or environmental initiatives (e.g., through sponsorships and philanthropy) and adherence to laws. In the early 2000s, organisations began positioning themselves as leaders in sustainable development by creating a sense of leadership through trust, honesty, and knowledge and reporting their sustainability using established reporting frameworks such as the GRI. Towards the end of the decade, these organisations started portraying themselves as 'good' organisations capable of being socially and environmentally responsible while maintaining economic success. According to the authors, this 'good' construction resembles the 'win-win' discourse, which underlines benefits for the organisation and the society/environment.

The 'win-win' ethos was also evident in Laine's (2005) examination of sustainability disclosures among Finnish-listed companies. The idea of sustainable development was depicted as a strategy to achieve economic growth alongside environmental protection and social improvements with minimal trade-offs or changes to the prevailing social structures. Consequently, companies were mainly seen reporting matters that reflect weak sustainability, allowing them to continue their business-as-usual operations unquestioned. Laine observed sustainability being portrayed mostly as a goal businesses can eventually achieve through technological innovations, while society's role in regulating these actions appeared minimal. Fundamentally, Laine's work (2005; see also Laine, 2010) demonstrated that the Finnish companies' sustainability disclosures have many ambiguities and a lot of 'talking the talk' and only very little evidence of the 'talk being walked'.

Livesey and Kearins (2002) raised the question of whether sustainability reports truly reflect and contribute to any organisational or social change or if they merely serve as rhetorical efforts to contribute to the colonisation of the mind. For example, in their view, using the term ‘transparent’ in conjunction with sustainability carries the potential to reconstruct ‘reality’ related to sustainable development in arbitrary and manipulative manners by making only those things transparent that companies wish others to see.

Further textual analyses have revealed the utilisation of rhetorical strategies to transform negative perceptions. For instance, Domenec (2012) interpreted the Anglo-Saxon oil industry companies as attempting to reverse the industry's negative image by incorporating ‘green communications’ in their annual letters. In the Nordic context, Ihlen (2009b) characterised the persuasive rhetoric used in the Norwegian oil industry’s annual reports as paradoxical and oxymoronic, ultimately concluding that the industry defines sustainability to its own advantage.

In a similar vein, Rajandran and Taib (2014) suggested that companies can portray themselves as a source of positive events but distance themselves from negative ones through the use of certain language features. Their analysis of CEOs' statements regarding CSR in the annual reports of Malaysian companies is also one of the few employing Fairclough's three-dimensional approach to CDA to interpret the discourse used in SR. In short, within Fairclough's (1992) framework, the dimensions of ‘text’, ‘discourse practice’ and ‘social practice’ are related, whose relationship is simplified as follows:

> “social practice can be considered as the ‘motivation’ of groups, discourse practice includes the processes to concretize social practice and text is the product of social practice” (Rajandran and Taib, 2014, p. 306)

As mentioned by Fairclough (1992), not all parts of the text require analysis, and research following this framework may prioritise different dimensions based on the study’s specific objectives. Consequently, the existing literature encompasses different CDA studies, with some adopting a more macro-level approach to analysis while others focus on micro-level aspects of discourse. Where the macro-level analysis can enhance our understanding of the practice of SR and the structure of the reports, the micro-level analysis focuses on the grammatical and lexical components of the text and can help us decipher and understand the representation occurring in these reports (Rajandran and Taib, 2014).

Rajandran and Taib's (2014) analysis focused first on the micro-level aspects and revealed how the CEO statements in the reports were constructed to depict corporations as the source of CSR initiatives. These statements were deemed to convey promotional and public relations undertones, which may suffer from a credibility gap. The authors then furthered the analysis by exploring the discourse practice, particularly intertextuality, by identifying cited texts within the corpus. This analysis demonstrated that the potential credibility gap was narrowed by citing external texts with established authority in the CSR realm. Examples included references to policies or standards (e.g. the Kyoto Protocol), studies traceable to the company (e.g. employee survey), or other organisations (e.g. external consulting firm reports).

Other CDA studies have opted for a broader approach, focusing more on the macro-level analysis of discourse practice and its associated concept of 'genre'. For instance, Nielsen and Thomsen (2007) conducted an examination of Danish companies' annual reports through a rhetoric and discursive lens to analyse what organisations say and how they say it. Their findings suggested that the discourse constructed across the reports was somewhat inconsistent and varied in focus. While some focused on profit, others focused on people, and while some identified their stakeholders with an emphasis on customers, others emphasised their employees. These variations in discourse led the authors to delineate two types of social order, i.e. the business discourse on profit maximisation and the public discourse on social responsibility.

While the aforementioned examples may suggest that studies using the CDA approach mainly take a critical view of business, Higgins and Coffey (2016) argue that such studies can also have a productive and optimistic agenda. Their analysis of Australian companies' sustainability reports, which focused on the macro-level discourse and genre, aimed to discover what reports 'do' to offer insights about what they 'could do'. This analysis revealed that companies strategically use SR, with sustainability being integrated into their strategic priorities. Although the observed sustainability discourse was made largely from the business perspective, the authors highlighted that companies that take sustainability seriously and integrate it into their strategic decision-making could realise considerable benefits from sustainability reporting. For example, reporting allows them to articulate their viewpoints, practice dialogue with stakeholders, and demonstrate organisational outcomes – thereby potentially assisting them with matters such as strategic differentiation.

So far, this chapter has shown that sustainability and sustainable development are loosely defined, with interpretations often reflecting the ethical perspectives of those

engaged with them. Varying definitions may challenge businesses to establish a common understanding of these terms, yet this elusiveness can suit their different purposes. Nevertheless, companies are increasingly expected to become accountable for their non-financial outcomes. Since stakeholders cannot directly observe these outcomes, they rely on SR, whose demand has increased. While standard-setting organisations like the GRI have mainstreamed SR with standardised disclosures, companies still have significant discretion in how they report their non-financial information. The (non)disclosure behaviour can be explained from different theoretical perspectives (economics, sociology, or critical). This literature review will now proceed to the immediate context of this dissertation, namely sustainability and SR in the airline industry.

2.3 The airline industry context

The preceding half of this chapter provided an overview of the concepts and concerns surrounding sustainability and sustainability reporting. Positioned within this broader context, the subsequent section delves deeper into the specific context of this dissertation. It begins with an overview of the airline industry and its emissions, which represent its most significant sustainability challenge. Subsequently, it presents a systematic literature review of scholarly research on airline sustainability reporting to acknowledge the prior associated literature and highlight the common concerns identified regarding the industry's reporting practices.

2.3.1 The airline industry and its struggle to mitigate emissions

Airlines represent a truly global industry, playing an important role in enabling the global economy. Before the unprecedented disruption in international air travel caused by COVID-19, over 9 million passengers travelled daily on about 100,000 flights on a network of about 51,000 routes and transported US$17.5 billion worth of goods to industry and homes (O'Connell, 2018). In 2019, the world's airlines carried 4.5 billion passengers, generating $838 billion in revenue (IATA, 2020b) while directly employing almost 3 million people (IATA, 2020d) and supporting nearly 88 million jobs worldwide in aviation and related tourism (ATAG, 2020a).

While the industry has experienced rapid growth in the past and has become an increasingly significant enabler of global transport, it has also demonstrated decelerating fuel efficiency improvements, making it one of the fastest-growing industries in the global economy measured by GHG emissions (Kim, Lee and Ahn, 2019). Aviation is

responsible for about 2% of all anthropogenic CO_2 emissions (ATAG, 2020a, 2024). Some projections suggest that these emissions could triple by 2050 compared to pre-COVID-19 levels (Kharina, Rutherford and Zeinali, 2016; cf. Bows, Anderson and Peeters, 2009; Kieckhäfer *et al.*, 2018; Baroutaji *et al.*, 2019), underscoring the necessity of implementing diverse mitigation strategies to address this issue.

In addition to aviation-induced CO_2, aircraft emit a number of other pollutants harmful to the environment and climate. While some pollutants, such as carbon monoxide (CO) and unburned hydrocarbons (HC), have gradually become insignificant for the airlines (IATA, 2020a), several non-CO_2 gasses, including nitrogen oxide (NO), soot, and sulphur (SO_x) (Lee *et al.*, 2021), and non-CO_2 effects such as contrails and aviation-induced cirrus clouds have been identified significantly contributing to global warming (Larsson *et al.*, 2018). Lee *et al.* (2021) calculated that the industry's CO_2-warming-equivalent emissions based on global warming potential (GWP[3]) might be warming the climate three times as fast as that of aviation CO_2 emissions alone. (cf. Larsson *et al.*, 2018). In this regard, NO_x emissions have received much attention because they are projected to increase significantly in various future scenarios (Baroutaji *et al.*, 2019).

Mitigation strategies for aviation include replacing traditional aviation fuel with low-carbon alternatives such as biofuels, implementing and enforcing international and national climate policy instruments, technological enhancements, and decreasing travel volumes compared to business-as-usual operations (Larsson *et al.*, 2019). All these approaches pose their own set of challenges and are unlikely to be effective on their own.

Biofuels represent one of the most impactful means to achieve fuel and CO_2 emissions savings at present (Kilkis and Kilkis, 2017). However, their production has been associated with ethical issues, which is why public opinion on biofuels has been controversial in the past (Delshad *et al.*, 2010). This has been especially true for biofuels made from edible crops, given that global hunger is an existing problem (Shahare, Kumar and Singh, 2017). Additionally, biofuel production has been connected with deforestation issues (Jupesta, Harayama and Parayil, 2011). Recently, there has been a shift towards more sustainable production of biofuels from waste and residue, which can potentially result in up to 80% lower lifecycle CO_2 emissions compared to conventional jet fuel (IATA, 2016). However, the availability of biofuels has been very limited, and this is expected to remain so in the near future (El Takriti, Pavalenko and Searle, 2017). From

[3] "value describing the radiative forcing impact of one unit of a given GHG relative to one unit of CO2 over a given period of time" (GRI, 2018, p. 18)

an economic standpoint, mainstreaming biofuel use in aviation has also faced challenges due to its significantly higher price compared to conventional jet fuels (Larsson *et al.*, 2019).

However, the limited demand for biofuels may slowly increase due to the growing pressure on airlines to reduce their CO_2 emissions. Kim, Lee and Ahn (2019) identify indirect and direct pressures in this regard. On the one hand, they highlight the industry's commitment, spearheaded by IATA, to cut down aviation emissions by 50% by 2050 from 2005 levels as a significant example of indirect pressure. On the other hand, direct pressure emerges from policies and regulations that impose a direct financial burden on conventional jet fuel use. Examples of direct pressure include international market-based measures such as the EU Emissions Trading Scheme (EU-ETS) and the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).

Under the EU-ETS, which applies to all intra-EEC flights[4], all commercial airline operators must report their CO_2 emissions[5], in addition to which they receive tradeable allowances covering a certain cap of their emissions, and producers of excess CO_2 have to purchase excess allowances from other polluters within the scheme (Maertens *et al.*, 2019). While its recent agreement ended in 2023, EU-ETS has subsequently continued with more stringent rules that will phase out free allowances by 2026, placing even greater responsibility on the industry to pay for its carbon footprint and simultaneously create more economic incentives to reduce emissions (European Commission, 2022b).

Unlike EU-ETS, which is restricted to the EEC, CORSIA is a global offsetting scheme for international aviation. The International Civil Aviation Organization (ICAO) approved CORSIA and its phased implementation commenced on January 1, 2019, after which ICAO's 193 member states have been obligated to adhere to the scheme (IATA, 2019). According to the initial scheme (IATA, 2019), airline operators with annual emissions exceeding 10,000 tonnes of CO_2 needed to disclose their emissions from international flights to their corresponding states. From 2021 onwards, countries participating in CORSIA's piloting carbon offsetting phase were required to offset their post-2020 CO_2 growth on international routes. Starting from 2027, all international flights – except those from a group of developing countries – are subject to offsetting requirements. The CORSIA baseline was soon changed from 2020 to 2019 due to the COVID-19 crisis, as the emissions in 2020 dropped by 59.6% from 2019 (IATA, 2023). Nevertheless,

[4] EEC = EU and Iceland, Liechtenstein, and Norway

[5] Emissions must be reported to the airline company's respective country

offsetting occurs by purchasing carbon credits issued by various GHG projects, such as reforestation, that can result in quantifiable reductions (or carbon sequestration) in emissions (Maertens, Grimme and Scheelhaase, 2020).

The introduction of CORSIA has resulted in some resentment among airlines, especially those from Europe, as they are required to compensate for emissions under two overlapping schemes (Larsson *et al.*, 2019). The European Commission (2022) has announced that it will assess CORSIA's efficiency in delivering the goals of the Paris Agreement, based on which it may adjust – even tighten the EU-ETS for flights within the EEC and departing from its area. At the same time, both schemes have been criticised for not addressing the non-CO_2 effects of aviation and being unable, therefore, to deliver absolute reductions in GHG emissions (Maertens *et al.*, 2019).

In addition to schemes that bound airlines to offset their emissions, many airlines themselves offer carbon offsetting to their passengers to offset their flight-related CO_2 emissions (Mayer, 2018). Offsetting in such programs occurs through investments in programmes that either reduce or capture carbon, which are often related to improvements in energy efficiencies or reforestation (Gössling *et al.*, 2007). Although many passengers view such schemes as a good tool to address climate change (Segerstedt and Grote, 2016), their real benefits remain contested (Becken and Mackey 2017; see also Johansson and Gössling, 2014), with Gössling and his colleagues (2007) labelling them as an "ambiguous solution to aviation's environmental impacts, and (…) for sustainable tourism management" (p. 241).

One of the major challenges in achieving sustainability in aviation has been related to its incremental technological achievements, which have not been sufficient to level off the emissions caused by the industry's growth rate (Bows, Anderson and Peeters, 2009). Most radical technological innovations, such as all-electric or hydrogen-powered aircraft, are still in the early stages of development and are not expected to result in significant emission reductions over the next few decades (Larsson *et al.*, 2019). At the same time, the entire industry has been anticipated to double its size by 2036 (IATA, 2017). While the impact of COVID-19 was unprecedented, which is why some previous estimates should still be interpreted with caution, history shows that prior external shocks – such as September 11, SARS, the financial crisis of 2008, and MERS–did not lead to long-term declines in global tourism (Gössling, Scott and Hall, 2021). Indeed, prior industry predictions already estimated that passenger traffic would return to pre-COVID levels during 2024 (IATA, 2020d; ACI, 2023), with further growth likely after that.

Various factors have contributed to the growth of global air travel, including increased disposable income, the rise of the global middle class, increased international trade, and, notably, the falling of air travel fares (O'Connell, 2018). Indeed, the airfares had more than halved over the past two decades before COVID-19 (IATA, 2018). Developments contributing to declining airfare included the deliberation of aviation services and the rise of low-cost carriers, which stimulated competition (Oum and Zhang, 2010). The downside of this development was that it lessened airline market power and eroded profit margins, especially for full-service carriers (Zhang and Zhang, 2018). Air travel has also grown due to industry subsidisation, which, according to Gössling *et al.* (2019), has contributed to the idea that flying is a social norm. They go on to argue that airlines often reinforce this idea in various discourses by emphasising the industry's social benefits, such as employment or intercultural understanding, as well as highlighting individual desirability of flying in terms of experience and convenience within space-time constraints. At the same time, the airlines' constructed communication has been observed to be used to shift responsibility for climate change to the passengers (Burns and Cowlishaw, 2014).

In recent years, a growing debate has emerged about whether air travel should be seen as a social norm. Following the advocacy of Swedish climate activist Greta Thurnberg and her student strikes against flying, many Swedes started to feel ashamed of air travel, which became known as 'flygskam' or 'flight shame' in English (Henley, 2019; Piskorz, 2019). Flight shame, which identifies air travel as morally questionable (Gössling, 2019), has then gained global attention and sparked discussions on its impact on the airline industry. For example, Forbes asked whether such shaming could even become a threat to the airline industry (Goldstein, 2019). At least in Sweden, the total number of passengers started declining already between 2018 and 2019 – a year before COVID-19 – which has been speculated to be a result of the flight shame phenomenon (Gössling, 2019). Inspired by flight shaming, thousands of Swedes have taken on the challenge of travelling without flying in 'Flight-free' campaigns, which have subsequently spurred counterpart campaigns in other parts of the world, including Belgium, Canada, Denmark, France, Germany, and Norway (CAPA, 2019). At the same time, environmental groups have started targeting airlines with accusations of greenwashing used in their communications (Mayer, 2018). Furthermore, political discourse associated with aviation started making headway toward the idea that aviation should be taxed in the EU countries (De Clercq and Psaledakis, 2019), with countries such as Germany, France, and The Netherlands having already introduced their country-specific taxes to mitigate environmental damage caused by aviation (Barbiroglio, 2019).

Given the airline industry's contribution to global warming and its recent prominence in the climate change debate, the industry is expected to respond to this controversy through various communications. However, Mayer (2018) acknowledges that corporate sustainability and CSR content in the airline industry are still emerging themes in research, particularly in the area of airline SR. The remaining part of this chapter aims to synthesise this research by presenting a systematically conducted literature review on this topic.

2.3.2 Airline sustainability reporting: a systematic review of current literature

This section provides an overview of a review whose purpose was to explore how the existing scholarly research has approached the topic of SR in the context of the airline industry and what distinguishable concerns have emerged from this research. The review presented below is largely based on work by the author of this dissertation, coauthored with his PhD supervisor (Zieba and Johansson, 2022), in an article titled 'Sustainability reporting in the airline industry: Current literature and future research avenues', published in Transportation Research Part D: Transport and Environment. Presenting this review as part of this dissertation can be seen as a necessary step in justifying the research problem, as its results informed this dissertation about the existing gaps in the literature and, thus, gave direction for this research. Additionally, while the published version of the systematic review provides a concise overview of the literature landscape, the extended format of the PhD dissertation allows for a more comprehensive description of the review process and the reviewed prior studies. Therefore, presenting a previously conducted literature review here not only grounds the research agenda of this dissertation but also enhances its scholarly contribution by providing a more detailed description of it than what was possible within the more parsimonious journal article.

The conducted review followed the principles of systematic literature review, distinguishing itself from general literature reviews by its scope and rigour in collecting and synthesising previous research (Okoli, 2015). Initially developed as a scientific technique in medical science and later adopted to management research (Tranfield, Denyer and Smart, 2003), the advantages of systematic literature reviews are argued to lie in their ability to limit bias and improve reflection of reality (Mulrow, 1994). The following section will explain the systematic literature review method adopted for this review before reporting its results.

2.3.2.1 Explaining the systematic literature review procedure

The adopted systematic literature review method followed the steps of Tranfield and colleagues (2003), according to whom systematic review procedures within management research can be carried out in three stages:

1. Planning the review (scoping study to assess relevance and size of the literature, delimitation of the subject area, formulation of the review protocol)
2. Conducting the review (identification of keywords and search terms; deciding on the search strings, and inclusion/exclusion of publications based on the review protocol); and
3. Reporting the results (synthesis of papers through two-stage reporting: descriptive and thematic analyses)

Planning the review

Following the above procedures, the review began by carrying out a scoping study on the concept of sustainability reporting in the context of airlines. Keyword combinations associated with these two domains of interest were entered in various databases, which, together with the snowballing method, provided an exploratory overview of relevant literature. This initial review served two purposes. First, it indicated that the scope of relevant literature is such that conducting a comprehensive review would be practically manageable. Second, the review helped identify author-assigned keywords needed in the following stage, where the actual search was conducted. Before moving on to the next stage of conducting the review, a review protocol (Figure 2) was drafted to guide the rest of the review process, detailed below.

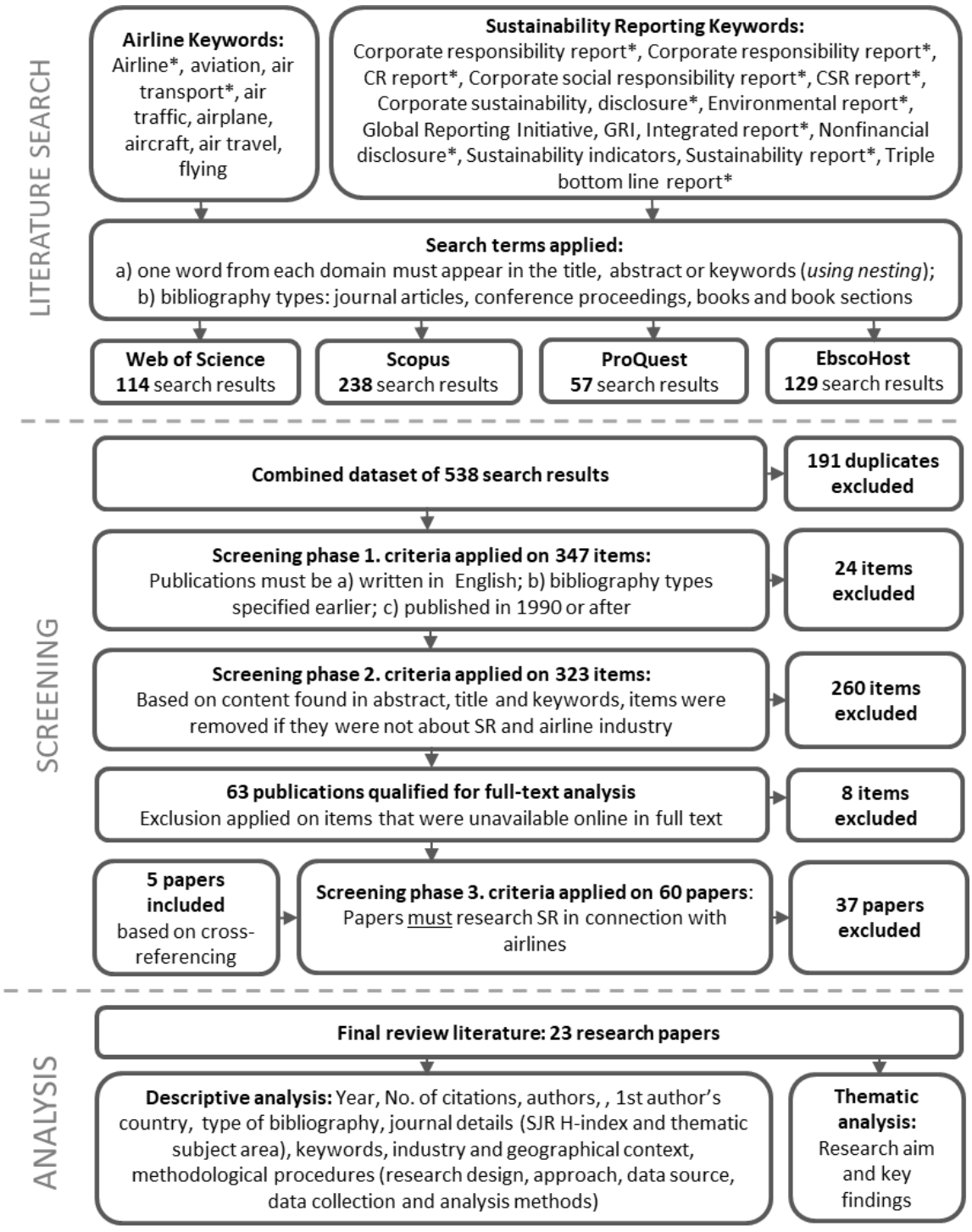

Figure 2 The systematic literature review process.

Reproduced from the author's own work (Zieba & Johansson, 2022, p. 4)

Conducting the review

According to Tranfield and colleagues (2003), the systematic review process begins by identifying keywords and search terms built on the scoping study. Accordingly, the keyword list used in this literature survey was initially built on author-assigned keywords found in past scholarly publications on airline SR. The keywords were categorised into the corresponding domains of interest, i.e., 'sustainability reporting' and 'airlines'. The list was complemented with various synonyms and associated terms of the identified keywords to retrieve the broadest set of search results. Related words were also searched from the JEL Classification Codes Guide (Journal of Economic Literature) produced by the American Economic Association, which provides a widely used set of keywords in social science research (Ginieis, Sánchez-Rebull and Campa-planas, 2012).

Additionally, asterisks (*) were employed wherever applicable to capture all related word endings (e.g. report* = report/s/ing). In order to delimit the search to those publications having an airline-specific sustainability reporting focus, it was determined that the searched publications need to contain at least one keyword from both defined domains of interest. These procedures led to the development of search strings using the nesting approach, where the Boolean operator OR was used to capture similar keywords within the two domains and the Boolean operator AND to connect both domains to the search. The keywords needed to appear in the title, abstract, or the keyword list of the publications searched, for which purpose database-specific field codes were used (complete search strings are enclosed in Appendix 1).

Systematic searches were carried out on Scopus and Web of Science (WoS), which are the two primary multidisciplinary abstract and citation databases of scholarly publications, encompassing a wide range of major scientific journal publishers and conferences (Franciosi *et al.*, 2020). These two databases were supplemented with EBSCOhost and ProQuest online systems, which both allow multiple database searches to be done simultaneously across a range of subject areas. Since this review focused on the existing scholarly research, grey literature and trade publications were excluded from the database queries.

The literature search was conducted on the chosen databases on February 20, 2020, yielding 538 search results. The data files were uploaded to JabRef citation and reference management software, which combined the files into a single library and removed duplicates. The library was then uploaded to the reference management

software Mendeley to detect and merge further duplicate entries where minor differences separated them from one another. Overall, 191 duplicates were removed during this process. The library was finally exported to .csv format and converted into a data extraction table containing information on 347 bibliography items, which were further analysed with Microsoft Excel.

In line with the guidelines set out by Tranfield *et al.* (2003), only papers meeting the inclusion criteria specified in the review protocol were included in the review. In the formulated protocol, the inclusion process consisted of three screening phases. The first phase involved quick exploration and filtering of the bibliographic data, during which items were removed based on three exclusion criteria. First, publications whose language was other than English were screened out. Second, because the intention was to concentrate on scholarly contributions, publications that represented bibliography types other than journal articles, conference proceedings, books or book chapters (despite being indexed as such) were eliminated. Third, publications published before 1990 were filtered out. The year 1990 was set as the starting point because the British Airways and Swissair 1989 corporate environmental reports are seen as early examples of non-financial reporting within the airline industry (Hooper and Greenall, 2005; cf. Mayer, 2018). Overall, 24 bibliography items were excluded as a result of the first screening.

The second screening phase involved reading the abstracts, titles and keywords connected to the bibliographic data. During this phase, exclusions were based on the judgement about the relevance of the scholarly contributions to the topic of airline sustainability reporting. Because such judgements may remain relatively subjective, this phase of the systematic literature review was conducted together with the PhD candidate's supervisor: first independently by both and then comparing the results against each other (cf. Badi and Murtagh, 2019; Tranfield *et al*., 2003). In case of inconsistency or uncertainty, the inclusion decision was discussed together. If an agreement was not found, the publications were, by default, transferred to the following phase of full-text analysis. In total, 260 items were considered to fall outside the research interest and were excluded from the data. After the exclusions, another literature search was performed to retrieve the remaining 63 publications that qualified for full-text analysis. Eight of the publications were inaccessible and, thus, excluded from further reading.

The third screening phase involved reading 55 accessible full-text publications. During this phase, only those publications that were considered to contribute to the research of airline SR were saved for final analysis. Additionally, following the procedure used in other systematic literature review studies (Vitolla, Raimo and Rubino, 2019; Franciosi *et al.*, 2020), references found in the full-text analysis were screened to identify further relevant publications, which had not been captured in the initial literature search. Five additional publications were found, whose contents were also assessed. Similarly to the second screening phase, the outcomes of the full-text analysis were first discussed with the PhD supervisor before making mutual decisions on which publications would be included in the final analysis. By the end of the final screening, a total of 37 publications were removed, resulting in a final sample of 23 scholarly publications. It is worth noting that the papers that qualified for the final analysis were selected strictly based on the consideration that they must research sustainability reporting in connection with airlines.

Reporting the results

In line with Tranfield and colleagues (2003), the researcher should follow a two-stage reporting built on descriptive and thematic analyses when conducting a systematic literature review within management research. Descriptive analysis was achieved by examining a set of categories (see Figure 2) using the data extraction table, through which a comprehensive report could be produced to demonstrate how scholarly research has approached the topic of sustainability reporting in connection with airlines. Other recent systematic literature review studies (cf. Lupova-Henry and Dotti, 2019; Munaro et al., 2020) that have provided overviews of academic contributions in a particular field were used as an example when the categories were selected. The results of this descriptive analysis are reported under section 2.3.2.2.

The purpose of the thematic analysis, in turn, was not only to build a picture of the research areas that the existing literature has covered. More considerably, the purpose was to distinguish the major concerns that emerged from the existing airline SR research. The reason for doing this was motivated by the consideration that it is not only meaningful to document the past but also to highlight problems characterising the airline SR that the current PhD dissertation and future studies still need to address (see Perry, 1994). The thematic analysis was performed in accordance with the six-phase approach by Braun and Clarke (2006, 2012). In short, the analysis began by extracting passages from the papers relating to their research aim and primary research findings, which were entered into the data extraction table while making annotations about any relevant items of interest. Next, the passages were compiled into a word-processing file and coded

inductively by identifying features of the data relating to concerns associated with airline SR. As a third step, themes were constructed by identifying similarities and overlaps between the codes. This was followed by the fourth step, where the potential themes and their relationships were reviewed. Lastly, the themes were defined, named, and finally reported, corresponding to the fifth and sixth phases instructed by Braun and Clarke (2006, 2012). Based on the conducted analysis, the distinguishable concerns emerging from the existing airline sustainability reporting research were clustered into thematic areas. Originally presented as five identified areas of concern in Zieba and Johansson (2022), this dissertation has reorganised and recombined the themes into three overarching areas of concern, enhancing the logical flow of the narrative in this chapter. These themes, i.e. (1) Inconsistent reporting practices and policies, (2) Factors shaping airlines' sustainability reporting and its impacts, and (3) Quality disclosure concerns and ambiguities in sustainability reporting, are reported under section 2.3.2.3.

2.3.2.2 Descriptive analysis of the previous literature

The review demonstrated that the research on SR in the context of the airline industry is relatively new. The earliest contributions found in the final sample are Hooper and Greenall's (2005) research paper, which explored the potential for environmental performance benchmarking in the airline sector. Chan and Mak's (2005) study, published in the same year, analysed the environmental reporting structures of selected European airlines. No clear growth trend was detected (see Figure 3) in airline sustainability reporting research.

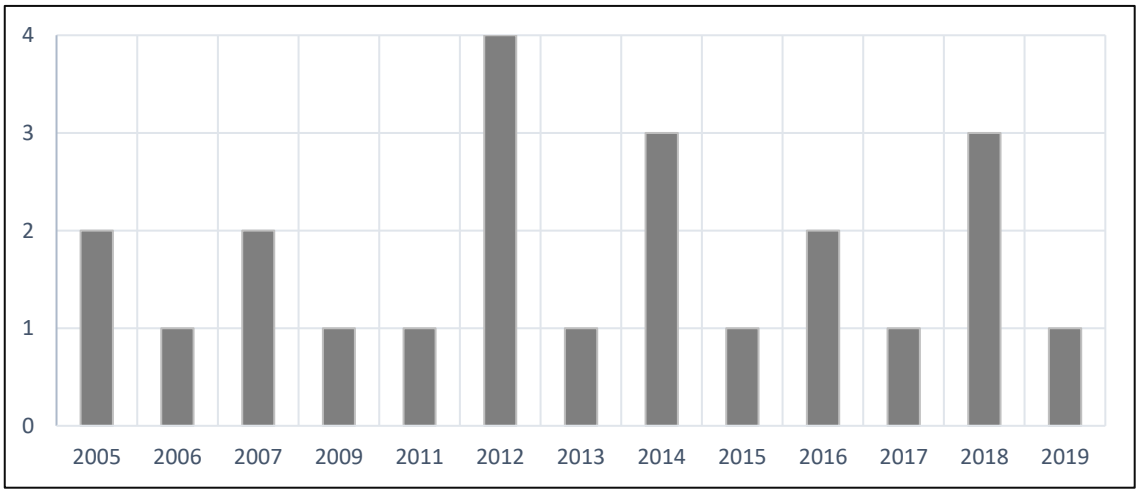

Figure 3 Yearly publication from 2005 to 2019.

Reproduced from the author's own work (Zieba & Johansson, 2022, p.6)

The final review literature consisted of 23 scientific publications, including 20 journal articles, two conference proceedings and one book chapter, containing contributions from 48 authors. Concerning the publications' first authorship, the affiliations are mostly located in Asia, accounting for almost half (48%; n=11) of the research, followed by Europe (35%, n=9) and finally North America (17%; n=3). Further publication details are summarised in Appendix 2, including the number of citations indicating their impact and the H-index for each journal to indicate their prestige (see Harzing, 2020).

The journals in the final sample can be associated mainly with the thematic subject areas of business, management and accounting, and social sciences (see Appendix 3). When analysing metadata, various keywords can be considered as attributes that also form the basis for identifying themes (Lin, Li and Zhou, 2008). Consequently, the author-assigned keywords found in the review literature were analysed. In total, 58 different keywords were identified, with 'corporate social responsibility' being the most frequent and appearing in five publications. The majority (83%, n=48) of the keywords occurred only once, leading to their grouping based on their similar meanings or context. The keywords associated with 'sustainability reporting' comprised the largest group, followed by a group associated with 'corporate governance' and 'corporate social responsibility'. The third highest occurrence was shared by two groups: one consisting of aviation-related keywords and the other comprising keywords associated with 'performance management' or 'strategic management'. These results indicate that the existing research on airline sustainability reporting appears to be strongly management-oriented and focused on evaluating the performance of the application of SR. Appendix 4 shows a summary of the keyword groupings, their occurrence and associated keywords.

It is important to highlight that not all publications in the final review focus solely on the airline industry. Only 13 of the 23 reviewed publications were specific to airlines. By contrast, three publications have a broader emphasis on the aviation industry, which encompasses other subsectors such as airports and aeronautics. This distinction is important to point out because different sectors within aviation deal with different sustainability issues. For instance, airports, which provide critical nodes in the air transport system and infrastructure for airlines, have evolved to include shopping malls, hotel complexes, and industrial zones, whose sustainability issues relate to land use and biodiversity (Ferrulli, 2016). Arguably, these differences may also reflect different challenges in SR. Additionally, seven of the reviewed publications examined airline SR in conjunction with multiple industries whose sustainability issues may deviate from the airline industry even to a greater extent.

Concerning the geographical distribution of the published papers, the review demonstrated that prior research on airline sustainability reporting had focused on Europe, Asia-Pacific, and North America. On the one hand, this is no surprise, considering that the first authors associated with the reviewed papers have affiliations in these regions. On the other hand, the focus on these regions is also anticipated because they are regarded as the most significant aviation markets (Hoffer Gittell *et al.*, 2009; Biesslich and Liebhardt, 2013; ACI, 2018). Appendix 5 provides further details of each publication's industrial focus and geographical context.

What research projects aim to achieve, in terms of their goals and conclusions, can be observed from the perspective of what type of research design the study has adopted (see Durrheim, 2006). The research design can be understood as a set of "procedures for collecting, analysing, interpreting and reporting data in research studies" (Creswell and Plano Clark, 2007, p.58). Consequently, the methodological approaches adopted in the studies included in the review were also analysed. Appendix 6 summarises the research designs (exploratory, descriptive, causal), approaches (quantitative, qualitative, mixed), and associated data collection and analysis techniques found in the reviewed literature. It must be pointed out that there was much variation in how clearly the papers articulated their methodology.

Only four of the reviewed papers explicitly specified their research as being exploratory. The remaining 19 papers did not include such descriptions. In order to make a distinction between the types of research design, the descriptions provided by several scholars in the academic branches of social sciences, including business and marketing research and case study research (cf. Yin, 2003; Durrheim, 2006; Neuman, 2014; Panda *et al.*, 2015; Aboujaoude, Feghali and Kfouri, 2018), were used as a guide to describing the reviewed research. It is important to acknowledge that the social science research community may not explicitly agree on what exactly counts as exploratory, descriptive, and causal research (Durrheim, 2006). Even if such divisions between the main designs provide useful categorisation regarding the research purpose, research often falls on a continuum between the divisions (Grinnell and Unrau, 2011). Therefore, the following results should only be seen as indicative.

Over half of the papers (n=12) were considered to be exploratory by nature as they focused mainly on gaining familiarity with a relatively underexamined research area (Durrheim, 2006), or they presented the status of sustainability reporting in different contexts without arriving at any specific answers (Neuman, 2014). Such kinds of studies

explored, for example, the potential for environmental benchmarking in the airline sector (Hooper and Greenall, 2005) and reviewed the status of reporting in different contexts, including the Pakistani aviation industry (Kemp and Vinke, 2012), low-cost airlines, (Coles, Fenclova and Dinan, 2014) and the members of the largest airline alliances (Cowper-Smith and Grosbois, 2011).

On the other end of the continuum, causal studies are typically associated with testing theories (Neuman, 2014) and explaining cause-effect relationships (e.g. Aboujaoude *et al.*, 2018; Durrheim, 2006). Only four papers asserted such aims. Amongst them, Karaman *et al*. (2018), grounded in legitimacy theory, inter alia, tested how the firm size increases the likelihood of GRI-based SR in the aviation industry. In another study, Kilic *et al*. (2019) lent support to institutional theory by implying that ideal country-specific conditions pertaining to environmental and social development positively affect GRI-based SR. The previous two papers contained large samples whose results can be seen as generalisable in the context of aviation. Out of the other two papers, Kuo *et al*. (2016) hypothesised a relationship between the influence of target readers, motivations, and perceived barriers for CSR reporting. They asserted modelling this hypothesised concept as a cause-and-effect relationship and presented a list of economic and ecological goals that would significantly impact airlines' motivation for reporting CSR. Their sample, however, consisted only of 26 respondents, which is why their findings may not be considered very conclusive, making it only somewhat of a "quasi-causal" study. Also, the study by Mattera *et al*. (2012), which constructed a model to test whether ISO 2600, state ownership and inclusion of GRI reporting impact brand reputation, collected data from 16 Spanish service companies, of which only one was an airline. Arguably, the study's generalisability and relevance to the airline industry must be interpreted cautiously.

The remaining papers (n=7) mainly focused on identifying and describing elements or characteristics associated with the phenomenon of sustainability reporting through various classifications or relationships, which are typical aims for descriptive research (Aboujaoude *et al.*, 2018; Durrheim, 2006).

In addition to identifying different types of research designs, another way of distinguishing research is by its approach, which can be either quantitative or qualitative (see Durrheim, 2006). This distinction may not always be straightforward since researchers often integrate elements and techniques from both approaches. Several papers in the reviewed literature did not clearly specify their research approach. To

differentiate the reviewed research, the distinction was made at the most surface level following Saunders, Lewis and Thornhill (2012), according to whom quantitative research generates and uses numerical data, qualitative research generates and uses non-numerical data, and mixed methods research combines the two to varying degrees.

Except for two research papers (Coles, Fenclova and Dinan, 2014; Kuo *et al.*, 2016), the data collection in the reviewed studies was mainly based on secondary data deriving from documents and records such as sustainability reports and company websites. The data were mostly categorised according to their relevance to the research objectives or questions through the application of quantitative or qualitative content analysis. The quantitative method was slightly more prevalent in the reviewed bibliography, which also tended to be more prominent in the mixed-method studies. In most such studies, the data was collected from the same source, which was first quantified and then supplemented with additional qualitative analysis to support the findings or bring substance to specific subtopics.

In contrast to the document survey, which appeared to be the most dominant research strategy in the reviewed literature, two papers demonstrated alternative strategies. Kuo *et al.* (2016) based their statistical analysis solely on primary data collected through a survey of airline representatives, complemented by two confirmatory interviews. Coles, Fenclova and Dinan (2014), in turn, employed in-depth interviews of key informants, whose analysis was driven by grounded theory to make juxtaposition against secondary data, which was collected from the reporting text.

2.3.2.3 Thematic analysis of the previous literature

On a broad level, the reviewed literature can be categorised into two periods: the initial studies before 2010 and the subsequent period. The analysis indicated that the early research primarily focused on analysing SR by mapping its status and progress in the industry, particularly concerning environmental disclosure. After 2010, the research became more diversified, taking an interest in areas such as occupational health and safety disclosures, motivations for reporting sustainability and barriers to it, topics related to materiality and boundary concepts, as well as external guidance providers, namely the GRI. A summary of the research focus and key findings of the reviewed literature synthesis is enclosed in Appendix 7.

As mentioned earlier, the primary purpose of the thematic analysis conducted as part of the systematic literature review was not to describe what aspects of SR the prior

research had covered in the context of the airline industry. Instead, the purpose was to distinguish the common concerns emerging from the existing research, i.e., problematise areas of airline SR that the current dissertation (and other future) research could address. The analysis of the key findings in the reviewed literature pointed to various concerns, which are grouped into three thematic areas described below.

(1) Inconsistent reporting practices and policies

The first common concern highlighted throughout the reviewed literature was the lack of uniformity in SR and its associated policies. The conducted studies found inconsistencies, for example, in the definitions of sustainability indicators (Hooper and Greenall, 2005), as well as their measurement methods (Chen and Lin, 2009), particularly in areas like fuel efficiency (Chan and Mak, 2005; Mak and Chan, 2007) and climate-change disclosures (Eccles *et al.*, 2012), which poses challenges for sector benchmarking. Further differences in sustainability reporting practices were identified existing between different regions (Mak *et al.*, 2007), specific countries (Mak and Chan, 2007; Kemp and Vinke, 2012), different carrier groups (Rudari and Johnson, 2015), and even within the groups. For example, Coles, Fenclova and Dinan (2014) found European low-fare airlines' (LFAs) SR to be highly fragmented and varying in quality. They implied that the extent to which the airlines act responsibly is also challenging to evaluate because there is no common understanding of the term. On that note, Ringham and Miles (2018) argued that the industry lacks a conceptual clarification of the boundary definition, which draws the line at which the organisation is differentiated from its environment and society and ultimately sets the boundaries within which it can be held responsible. Similarly, Eccles *et al.* (2012) highlighted the necessity to define materiality on a sector-specific basis.

Not surprisingly, the reviewed research has emphasised the necessity of establishing a sector-specific model for airline sustainability reporting to facilitate meaningful inter-airline comparisons that would be valuable to various stakeholders, including governments and policymakers (Mak and Chan, 2006). While such authorities have been identified as consumers of sustainability reports (Kuo et al., 2016), scholars have called for regulators to take a more active role in facilitating the practice of airline sustainability reporting and implementing legal requirements where necessary (Mak and Chan, 2007; Karaman, Kilic and Uyar, 2018). Meanwhile, the practice of SR has remained voluntary in many parts of the world, with some jurisdictions mandating it

through regulations and compliance that can also vary across different countries (Chan and Mak, 2005; Paek and Chathoth, 2013; Coles, Fenclova and Dinan, 2014), making the global regulatory landscape for airline SR seem like a patchwork.

(2) Factors shaping airlines' sustainability reporting and its impacts

The second thematic cluster relates to various factors influencing the implementation level of sustainability reporting and the implications of conducting it. Regarding the implementation, Karaman, Kilic, and Uyar (2018) noticed that almost half of the global aviation sector companies were not publishing sustainability reports, although such activity was on the rise. Kuo *et al.* (2016) surveyed the airline managers' perspectives and found that the main barriers to reporting included the effort to collect credible data and the resources needed to produce such reporting. The findings of Coles, Fenclova, and Dinan (2014) also indicated that insufficient resources hinder airlines from thoroughly auditing their CSR activities.

The introduction of external guidelines, such as the GRI, has arguably facilitated the sustainability reporting process for airlines. In this regard, Karaman, Kilic and Uyar (2018) found that 85% of the aviation sector's stand-alone sustainability reports claimed adherence to the GRI. The proliferation of the GRI adoption may also explain why many studies included in the reviewed literature had used the GRI-based reports as their primary data for examining airlines' SR (Mattera, Baena and Cervino, 2012; Koskela, 2014; Rudari and Johnson, 2015; Taskinsoy and Uyar, 2017; Evangelinos *et al.*, 2018; Karaman, Kilic and Uyar, 2018; Ringham and Miles, 2018; Kılıç, Uyar and Karaman, 2019). This trend has also seemed to continue beyond this specific systematically conducted review (e.g., Yang, Ngai and Lu, 2020; Zhang, 2021; Rüger and Maertens, 2023; Johansson, 2024).

Certain statistical analyses have yielded interesting results regarding the factors influencing the adoption of the GRI. For example, Karaman, Kilic and Uyar (2018), grounding their hypothesis in legitimacy and agency theories, found that firm size and leverage are positively correlated with the implementation of the GRI, while Kılıç, Uyar and Karaman (2019), based on institutional theory, found that companies based in countries with strong governance structures and high social and environmental standards are more likely to engage in such reporting. On the other hand, SR appears to have little impact on the financial performance of aviation companies (Karaman, Kilic and Uyar, 2018), leading to questions about the extent to which they are of interest to shareholders. Still, in a study by Kuo *et al.* (2016), airline representatives perceived

shareholders alongside governments and customers as the target readers of sustainability reports, which may also influence how airlines respond to stakeholder pressure in their reporting. Indeed, previous research has indicated that reporting sustainability with the GRI may be positively associated with the company's brand awareness (Mattera, Baena and Cervino, 2012), which, as such, may explain companies' decisions to incorporate the GRI into their reporting.

While the GRI has improved the comparability of SR, as highlighted by Karaman *et al.* (2018), there can be trade-offs with the positive effects of the GRI adoption. For instance, contrary to their expectations, Ringham and Miles (2018) discovered that airlines that claimed compliance with the GRI selected narrower boundaries than those of non-signatories, meaning that they define their overall influence and control over significant sustainability issues in a more limited manner. The authors speculated that this could be due to the guidance provider's lack of focus on indirect impacts, even though the guidelines aim to promote transparency and best practices. However, this speculation seems to be at odds with the GRI requirements, at least regarding its emissions disclosure guidelines, because the GRI has already guided the reporting organisations to disclose their indirect emissions (Scope 3) since 2013 (Talbot and Boiral, 2018).

(3) Quality disclosure concerns and ambiguities in sustainability reporting

The final broad category of concern raised in the literature relates to the disclosure quality and ambiguities in sustainability reporting, some of which may be influenced by airlines' motivations to seek legitimacy. Regarding the quality concerns, Eccles and his colleagues (2012) classified most climate change/carbon regulations-related disclosures reported by US airlines as boilerplate statements consisting of generic language rather than industry-specific information. On a similar note, Evangelinos *et al.* (2018) noticed that companies' reports overlook many topics that may be relevant to them. Ringham and Miles (2018), in turn, concluded that the sustainability disclosure in the airline sector is altogether weak and based on a narrow focus and cherry-picked content.

Airlines may also use sustainability reports strategically as promotional and legitimacy-seeking tools to manage their image in the eyes of stakeholders rather than providing them with entirely accurate representations of corporate sustainability performance. Evidence of such unscrupulous practice is discussed in Bhatia's (2012) discourse analysis conducted in the context of CSR reports across different industries, including airlines. Her analysis suggested that the reports were a hybrid combination of factual reporting and promotional discourse, which use three different 'interdiscourses':

promotion, goodwill, and self-justification. However, the combination of factual information with promotional language seemed to be constructed in ways that mainly serve the company's interests, leading the practice to appear "more of a case of window-dressing, a public-relations exercise, rather than an accounting of company practices in a transparent manner" (Bhatia, 2012, p. 235). Indeed, reputation has been documented as one of the main drivers for airlines to conduct SR (Kuo *et al.*, 2016). Onkila, Joensuu and Koskela (2014) expanded this thought by asserting that building reputation is closely linked with seeking legitimacy for corporate activities, which are pursued through promotional language that portrays stakeholders as beneficiaries of environmentally friendly initiatives. Their study also noticed that a considerable number of companies' environmental disclosures express commitment to initiatives without describing their actual implementation. In a similar vein, Coles, Fenclova and Dinan's (2014, p. 70) study "discovered evidence that [low-fares airlines] were aware of the need to act more responsibly, but how far intentions resulted in action was difficult to establish". Such examples may imply that many airlines have the inclination to seek legitimacy by talking the talk without walking the walk.

Moreover, the reviewed literature indicated that companies may seek to strengthen their legitimacy by emphasising positive disclosure (Vourvachis *et al.*, 2016) and by seeking assurances from externally established standards that they subscribe to, support or have adopted (Onkila, Joensuu and Koskela, 2014; Evangelinos *et al.*, 2018). The present dissertation seeks to build upon and extend this research in ways described in the following concluding section of this chapter.

2.4 Chapter conclusions

The preceding literature review chapter has provided important background for this dissertation by delving into the overarching concepts and concerns associated with sustainability and SR and then more closely into the airline industry context and its associated SR research. The following provides a summary of the review from which the dissertation's questions have emerged.

A review of the wider body of knowledge demonstrates that sustainability and its associated concept of sustainable development have been loosely defined in research and practice. While the Brundtland Commission report provided a common definition for sustainable development, diverse interpretations have emerged, often reflecting the ethical perspectives of those engaging on the topic (see Mebratu, 1998; Kassel, 2012). In business management literature, these perspectives are typically categorised into two

extremes: ‘weak’ sustainability, which views the environment as a separate resource from society, and ‘strong’ sustainability, which integrates society into the environment and prioritises its concerns. Consequently, sustainability holds different meanings to different people in different contexts (Lélé, 1991; Johnston *et al.*, 2007). On the one hand, this has posed challenges for businesses in establishing a common understanding of how to pursue sustainability within a corporate context (Bebbington and Gray, 2000). On the other hand, this elusiveness has allowed organisations to use the concept to suit their purposes (Laine, 2005).

Nonetheless, a growing consensus is that corporate actions impact the natural system and that corporations should assume accountability to society for their environmental outcomes (Antolín-López, Delgado-Ceballos and Montiel, 2016), such as climate change. Stakeholders, however, cannot directly witness companies’ environmental impacts, such as emissions, which is why they must rely on SR (Illia and Stefania, 2013), a reliance that has been emphasised by the increasing demand for voluntary and mandated SR across regions (Van der Lugt, van de Wijs and Petrovics, 2020). The practice has also been mainstreamed by standard-setting organisations such as the GRI, which has helped companies disclose their environmental impacts and enabled stakeholders to evaluate their non-financial actions and outcomes better. However, companies have much discretion concerning whether and how they wish to present this information, and different motivations may be in operation when reporting behaviour is viewed from different theoretical perspectives: economics, sociology or a critical perspective.

The prevailing view is considered to reflect the economics perspective that primarily considers SR in terms of its benefits to companies and shareholders, often separating them from the environment (Merkl-Davies and Brennan, 2011), and thus following the lines of weak sustainability (Brown and Fraser, 2006). This dominant view is also arguably reflected in the current research conducted in the context of airline sustainability reporting. Based on the systematically conducted literature review, research in this area has largely appeared to assess the procedural performance of environmental reporting, identifying many reporting inconsistencies needing improvement (e.g. Mak and Chan, 2006, 2007). The focus on environmental aspects, particularly fuel efficiency, is not surprising, given the industry’s high dependency on fossil fuels (Mayer, 2018) and its challenges to mitigate its emissions highlighted in this chapter’s review. Some studies have also found the kinds of macro or firm-level factors that may condition the implementation of reporting practices (Karaman, Kilic and Uyar, 2018; Kılıç, Uyar and

Karaman, 2019). A shortcoming of such studies is that they do not consider the authenticity of the reports or question their potential role in perpetuating unsustainability (Livesey and Kearins, 2002). While the literature on airline SR has also highlighted concerns associated with disclosure quality and ambiguities associated with the reporting practice, this research has remained limited as far as these issues are concerned. More in-depth analysis and alternative perspectives from sociology and critical theory are needed to assess airlines' emissions disclosures and increase our understanding of how the environmentally unsustainable industry constructs its sustainability in relation to its climate impact.

Mayer's (2018) observations of the airline sustainability literature seem to support the above arguments. While he observes that the industry has been criticised for a lack of standardisation in reporting, he notes that research has not looked much at the application of standards and guidelines followed by airlines, although reporting frameworks, such as the GRI, have been developed. He also points out that while the industry has been at the centre of the climate change controversy, most often related to claims of greenwashing, academia has hardly built our understanding of the airlines' communication strategies in the context of sustainability reporting. Consequently, the present dissertation focuses on addressing these two gaps in the literature in the context of the industry's emissions disclosures. **The main research questions here are as follows: (1) To what extent are emissions disclosed in the global airline industry's sustainability reporting? (2) How is the communication surrounding emissions disclosures constructed to justify the industry's adverse climate impact?**

To approach the first question, the aim is not only to map the extent to which the industry reports its emissions. The research assumes that major airlines are likely to follow major reporting standards such as the GRI when reporting emissions for the reasons described in the literature, which include lowering the information asymmetry with shareholders (Karaman, Kilic and Uyar, 2018) and narrowing their reports' credibility gap (Rajandran and Taib, 2014), aimed at strengthening corporate legitimacy (Onkila, Joensuu and Koskela, 2014; Evangelinos *et al.*, 2018). However, companies claiming adherence to these standards may not necessarily mean they do so, in which case using the given standard can be considered ceremonial, part of companies' exercised symbolic management repertoire (Merkl-Davies and Brennan, 2011; Herbohn, Clarkson and Wallis, 2022). In such a scenario, companies may conceal or limit their negative disclosure whilst claiming compliance and receiving associated credibility (see Ringham and Miles, 2018). However, no research has yet evaluated the quality of airlines'

sustainability disclosures and the differences between being genuinely transparent about their sustainability impacts and their possible box-ticking approach to such issues. Indeed, this dissertation proposes that the extent of airlines' emissions disclosure cannot be determined solely by measuring the number of disclosures made but also by how they adhere to the disclosure standards they claim to follow. In this regard, counter-accounting, covered in this literature review (e.g. Gray and Herremans, 2012; Apostol, 2015; Talbot and Boiral, 2018), seems to provide an underutilised yet promising approach to examining the authenticity of the reporting and providing a more balanced picture of the airline industry's emissions reporting.

The second research question of this dissertation relates to another proposition, whereby this research postulates that the released emissions information can be misleading, even without being incorrect. This assertion derives from the literature's observation that the nature of climate-related disclosure is generally unregulated (Herbohn, Clarkson and Wallis, 2022), leaving corporations with the flexibility to decide how they construct discourse around disclosures and, in this way, manage the impressions of their stakeholders. Depending on the theoretical perspectives, corporations may seek legitimacy by justifying their emissions or constructing an impression of organisational rationality by retroactively assigning causes to emissions (Merkl-Davies and Brennan, 2011). Acknowledging that the airline industry has been at the centre of growing climate change controversy, its corporate actors are expected to protect their legitimacy by justifying or rationalising their negative climate impact.

Although impression management mentioned in the literature review appears to be relatively well-addressed in prior accounting literature (e.g., Merkl-Davies and Brennan, 2007; 2011; Sandberg and Holmlund, 2015) and to some extent in the context of climate disclosures (Talbot and Boiral, 2018; Herbohn, Clarkson and Wallis, 2022) the nature and manner by which airlines respond to the climate change controversy using it in emissions reporting has remained unexplored. Nevertheless, it seems to offer an appropriate conceptual framework to examine and understand how airlines may limit or justify their negative emissions disclosure. Accordingly, the next chapter discusses impression management as part of this dissertation's theoretical framework.

Finally, as mentioned earlier in this chapter, previous critical research on SR has emphasised the value of adopting the CDA approach in qualitative studies to understand how corporate actors use language to position and portray themselves in relation to certain phenomena. Accordingly, incorporating the CDA approach into this research

appears to offer depth in examining and understanding the underlying meanings of the discourse built around emissions disclosures. The extent to which CDA has been adopted in this research is explained in more detail as part of the research methodology (sections 4.5.2-4.5.3).

Chapter 3
Theoretical framework

3.1 Introduction

According to Grant and Osanloo (2014), "[t]he theoretical framework is one of the most important aspects in the research process" (p. 12), which is why clarifying it for the part of this research deserves a separate section in this dissertation.

Grant and Osanloo (2014) liken the theoretical framework to a 'blueprint' essential for constructing a strong and well-structured dissertation. In their view, this blueprint provides the structure that defines how the researcher philosophically approaches their dissertation, the theories that undergird the researcher's thinking of how the research topic is understood, and the conceptual framework that defines the concepts and variables used to explore the research problem at hand.

This dissertation examines airline emissions reporting through a philosophical lens grounded in the pragmatic research paradigm while incorporating it with a critical perspective. Its theoretical framework draws on various theories discussed in the literature review, including agency, legitimacy, institutional, stakeholder, and critical theory, to explain companies' discretion in disclosing sustainability information and combines these theories with impression management and neutralisation theory to increase our understanding of the strategies companies may use to limit or justify their negative sustainability aspects in reporting. Finally, as part of the conceptual framework of the research, various conceptualisations of impression management and neutralisation techniques are organised to guide the empirical part of the research to describe how airlines may have used them to limit or justify their emissions disclosure. Accordingly, the following subchapters will detail this dissertation's philosophical foundations. Then, following Grant and Osanloo (2014), the explanation of the dissertation's conceptual framework is embedded within the discussion of the theoretical framework. Finally, the chapter abbreviates and knits together the philosophical positioning and the theories and concepts linked with the main methods used to address the research problem and questions of the study and illustrates them as a concept map (see Figure 4 on p. 90).

3.2 Philosophical foundations: Positioning in the research paradigms

The concept of research philosophy, encompassing the foundational beliefs, principles, and assumptions shaping scientific inquiry, is firmly established in social sciences research (Morgan, 2014; Rehman and Alharthi, 2016; Kivunja, Ahmed and Kuyini, 2017), as well as in its application in business and management research (Saunders, Lewis and Thornhill, 2009; Lim, 2023). The concept is generally described as consisting of four components – ontology (how we understand reality), epistemology (how we perceive the nature of knowledge), methodology (how we pursue truth), and axiology (how we recognise our bias) [6] – which collectively serve to define research paradigms, the term first used by the American philosopher Thomas Kuhn (1962/1996) to delineate different ways of thinking in research.

Scholars have postulated numerous research paradigms (cf. Saunders, Lewis and Thornhill, 2009; Lincoln, Lynham and Guba, 2011; Lim, 2023), some suggesting they can be grouped into taxonomies consisting of positivist, interpretivist, and critical paradigms. (Candy, 1989; Rehman and Alharthi, 2016). Here, positivism and interpretivism offer contrasting views of reality, knowledge, and methodologies, and some authors place other paradigms between the two extremes, as exemplified by Lim (2023), who offers a typology that positions post-positivism close to positivism and constructivism close to interpretivism due to their many similarities on a broader scale[7]. While extreme positivism perceives the social world as akin to the natural world with objective cause-effect relationships and truths discovered through quantitative methods, interpretivism counters this view, asserting the social world's subjective nature, acknowledging multiple perspectives' influence on research outcomes and advocating for qualitative methods to reveal contextual understanding and human-created meanings (Saunders, Lewis and Thornhill, 2009; Rehman and Alharthi, 2016; Lim, 2023).

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[6] Another component that Lim (2023) sees as a key philosophical anchor in business research is *rhetoric: the art by which business research is communicated.* In his opinion, the language and rhetorical strategies should be congruent with the ontological, epistemological, methodological and axilogical choices made. Using and maintaining specific rhetoric seems to be less frequently discussed in other papers of related literature (cf. Saunders, Lewis and Thornhill, 2009; Morgan, 2014; Rehman and Alharthi, 2016; Kivunja, Ahmed and Kuyini, 2017).

[7] Lim (2023) argues that positioned along a continuum, the spectrum of ontological and epistemological positions encompasses positivism and interpretivism as the two extreme ends, with alternative paradigms such as post-positivism and constructivism lying between these poles, offering varying perspectives on the nature of reality and knowledge. These paradigms should, however, be seen representing distinct philosophical orientations within the broader spectrum of research paradigms, rather than being 'lesser forms' of positivism and interpretivism.

The critical paradigm, as previously discussed in this dissertation's literature review chapter (section 2.2.6.3), posits that reality is socially constructed. Rehman and Alharthi (2016) elaborate that critical theorists frequently critique interpretative and positivist research for their sole focus on explaining and understanding the social world without addressing its underlying injustices. By contrast, critical researchers seek to change unjust social systems, often employing qualitative methodologies like CDA to reveal how powerful actors use language to maintain authority.

Besides the dichotomy of research paradigms leaning toward positivism and interpretivism, as well as the critical paradigm, many authors propose another distinct paradigm that borrows elements from others, known as the pragmatic paradigm, which is less focused on the philosophical debates on reality and more concerned with the practical utility of research (Kivunja, Ahmed and Kuyini, 2017; Lim, 2023). This paradigm rejects the dichotomy between objective and subjective views, opting for a pluralistic context-dependent approach where both have their places (Lim, 2023). In this perspective, knowledge is seen as a tool for dealing with research problems that can make a difference in the world, using different methods deemed appropriate for the given context (Kivunja, Ahmed and Kuyini, 2017).

The philosophical foundations in this dissertation align with the pragmatic paradigm, as it does not commit to either side of the above-described dichotomy but focuses on the values that different approaches bring to the inquiry (Morgan, 2014) into airlines' emissions reporting to understand how this emission-intensive industry demonstrates its accountability for climate impact. In this dissertation, the pragmatic stance is most notably seen in the choice of innovative methods and the use of a combination of different methods to address the research inquiry from multiple angles, which is largely encouraged in the pragmatic paradigm (Lim, 2023). Simultaneously, the dissertation adopts a critical theory perspective, expressing scepticism about the potential for "real accountability" without radical change in capitalist society (Brown and Fraser, 2006). While some authors are sceptical about combining pragmatic and critical lenses (Grant and Osanloo, 2014), integrating these philosophical stances is not uncommon in business research. Lim (2023) elucidates the pragmatic paradigm as being receptive to critical theory and actively encouraging its infusion in business research. In this regard, he identifies a growing need to respond to concerns about climate change, to which business research rooted in the pragmatic paradigm could respond by monitoring and evaluating the adoption of reporting standards using mixed methods to generate actionable insights. This aligns largely with this dissertation's aim, which essentially is to

critically assess airlines' emissions disclosures. The underlying assumption guiding this assessment shares the belief inherent in critical accounting research that corporate reporting aims to portray the company in a positive light (Onkila, Joensuu and Koskela, 2014). However, without positive climate change news – that is, for firms that have not made substantive efforts to transition to lower-carbon economies – firms may find it difficult to provide an honest account of their emissions, leading them to selectively release information and present it in ways that manipulate or manage external perceptions of their accountability for emissions (Herbohn, Clarkson and Wallis, 2022). This assumption relates to the concepts of impression management and techniques of neutralisation, which provide additional lenses to examining corporations' reporting behaviour in instances when they release negative disclosure, which emissions inherently are for airlines. Thus, impression management forms an integral part of this dissertation's theoretical framework, explained below in detail.

3.3 Conceptual framework of impression management

As highlighted in the literature review chapter, existing research on airline SR has primarily focused on examining how and why companies report, revealing issues such as inconsistencies in reporting between airlines and the influence of macro or firm-level factors on implementing reporting practices or adopting disclosure standards. In contrast, the present dissertation aims to critically assess airline emissions disclosure by examining underexplored areas, such as what is not reported, including the disparity between disclosed information and actual adherence to disclosure requirements, and how airlines narrate their negative disclosures.

Based on suggestions presented in previous literature (e.g. Merkl-Davies and Brennan, 2011; Herbohn, Clarkson and Wallis, 2022), this dissertation proposes that companies without positive climate change news may seek to limit or justify their emissions disclosures by managing stakeholder impressions to uphold corporate legitimacy. Accordingly, these insights should be incorporated into this dissertation's research questions: 1) To what extent are emissions disclosed in the global airline industry's sustainability reporting? And 2) How is the communication surrounding emissions disclosures constructed to justify the industry's adverse climate impact? In this regard, impression management offers an additional lens to examine how companies limit or justify their negative disclosures. However, in the same way as the concept of SR, which as a practice has been postulated from different perspectives and theories, impression management is also a complex phenomenon whose use in reporting can be conceptualised in various ways depending on the perspective. Following the pragmatic

approach to the inquiry, this research explores the manifestation of this complex phenomenon from different angles. More specifically, the dissertation adapts the conceptual framework proposed by Merkl-Davies and Brennan (2011). In this adapted framework, impression management is conceptualised as *reporting bias* based on the economics perspective and its related agency theory; *symbolic management* based on a sociological perspective and its related legitimacy, institutional and stakeholder theories; and *retrospective rationality and accounting rhetoric* based on a critical perspective – all of which are associated with various impression management strategies.

The following introduces impression management and discusses its conceptualisation from different theoretical perspectives. These perspectives guide this research in examining the presence of various impression management strategies in airline emissions reporting by using different methods to answer the dissertation's research questions.

3.3.1 Impression management

Impression management, also referred to as image management or perception management (Merkl-Davies, 2016), originates from social psychology and describes how individuals present themselves to shape perceptions of others in their favour (Hooghiemstra, 2000; Boiral, Brotherton and Talbot, 2020). The concept has also found application in organisational studies, where it has been employed to investigate how firms safeguard their legitimacy in various situations (Bolino et al., 2008) by using different impression management strategies to promote achievements or minimise social responsibilities (Talbot and Boiral, 2015). In business research, the concept is sometimes called organisational impression management (Sandberg and Holmlund, 2015). In this context, it "refers to the way an organisation uses public communications, symbolic actions, and physical markers to influence … audiences' perceptions of the organisation… on an everyday basis … [but it is] particularly pronounced during nonroutine events that threaten organisational identity, image, reputation, or legitimacy, such as poor financial, social, or environmental performance; public controversies over environmental or social issues" (Merkl-Davies, 2016, p. 346).

In public communications, organisational impression management entails using corporate reporting or press releases "to garner financial, social, and political support from an organisation's constituents" (Merkl-Davies, 2016, p. 346). A range of research has indicated that firms have strong incentives to employ different impression

management strategies in corporate reporting (Merkl-Davies and Brennan, 2007), particularly in its division of non-financial reporting (e.g. Hooghiemstra, 2000; Merkl-Davies and Brennan, 2011; Higgins, Stubbs and Love, 2014; Sandberg and Holmlund, 2015). In this context, reports can be strategically used as instruments to manipulate perceptions conveyed to stakeholders (Clatworthy and Jones, 2001; Yuthas, Rogers and Dillard, 2002) by controlling what is disclosed and how (Bansal and Kistruck, 2006).

It should be noted that while impression management has been described in the literature as a conscious or unconscious act of controlling others' perceptions (Hooghiemstra, 2000; Merkl-Davies and Brennan, 2007), social psychology offers an alternative explanation for such behaviour, namely *hubris*. Merkl-Davies and Brennan (2007) describe hubris as a form of self-deception and cognitive bias that occurs when individuals do not behave perfectly rationally. They elucidate that, in the reporting context, hubris may manifest as managerial optimism and overconfidence about organisational outcomes. Although impression management and hubris stem from different motives, their potential consequences on disclosure can be similar, making it challenging to distinguish between them in corporate reporting research (Merkl-Davies and Brennan, 2007). Nevertheless, when the underlying purpose is to create favourable impressions of companies' operations that may not accurately reflect reality, the act can be understood as organisational impression management (Sandberg and Holmlund, 2015).

Although the existing research has identified many impression management strategies in the organisational context (e.g. Elsbach and Sutton, 1992; Bolino *et al.*, 2008; Sandberg and Holmlund, 2015), impression management can be conceptualised differently. Depending on the theoretical perspective adopted – economics, sociology, or critical[8] – different motivations are in operation, which may lead to different strategies being used with varying consequences for emissions disclosures (Herbohn, Clarkson and Wallis, 2022).

[8] Besides the conceptualisations made in economics, sociology, and critical views, in the original conceptual framework adapted for this dissertation, Merkl-Davies and Brennan (2011) also conceptualised impression management as a form of self-serving bias, based on the social psychology perspective and its associated attribution theory. According to this view, corporate actors engage in impression management due to their inherent duty of being answerable to their audience, which involves being scrutinised and having an obligation to provide explanations and justifications for their actions. In this view, impression management occurs as a managerial response to the anticipation of how the audience evaluates the firm's actions. Self-serving bias is executed by attributing positive organisational outcomes to internal factors and negative outcomes to external circumstances. This dissertation's conceptual framework does not distinguish self-serving bias as a separate concept from symbolic management due to the perceived overlap between the two. As will be demonstrated later, symbolic management may be executed through normalising accounts, which, as an impression management strategy, can be broadly associated with defensive impression management. This strategy, similar to self-serving bias, also occurs in response to stakeholders' potential concerns.

3.3.2 Impression management executed as reporting bias

From the economics perspective, which views reporting through the lens of agency theory, managers are believed to disclose information about organisational outcomes to overcome information asymmetries between managers and firm outsiders (Merkl-Davies and Brennan, 2011). However, in the absence of positive climate-change news, managers may resort to exploiting information asymmetries by engaging in impression management, conceptualised as *reporting bias*, which is driven by the manager's opportunistic behaviour implemented through various concealment strategies (Merkl-Davies and Brennan, 2007).

Concealment strategies can be categorised into *enhancement*, encompassing tactics such as selective data disclosure and performance comparisons aimed at presenting a favourable impression of the company, and *obfuscation*, consisting of tactics intended to obscure negative organisational outcomes (Merkl-Davies and Brennan, 2007). In relation to enhancement, Talbot and Boiral (2018) elucidate how companies' tendency to provide incomplete information can contribute to crafting a more favourable image of their situation. This tactic, termed *strategic omission*, involves deliberately withholding specific sustainability information or components thereof, which may also involve non-compliance with reporting standards (Talbot and Barbat, 2020). *Obfuscation*, in turn, may involve manipulating figures or information, such as presenting data in a format that does not align with the claimed compliance with reporting standards (Talbot and Boiral, 2018). Although an alternative explanation for omitting or obscuring information can be a lack of skills on the part of the preparer (which would be difficult to verify), Merkl-Davies and Brennan (2007) note that the lack of skills is less likely the explanation, given that corporate reporting is often conducted by professionals.

In this dissertation, the economics perspective, guided by agency theory, elucidates the role of information asymmetry in shaping airlines' emissions disclosure practices, encompassing the interplay between disclosed and concealed information. Within this framework, impression management, conceptualised as reporting bias and comprising concealment strategies, forms the conceptual foundation for exploring airlines' emissions reporting. While the present research expresses scepticism about the completeness of airlines' emissions disclosure, validating the truthfulness of airlines' emissions disclosures is nearly impossible to examine. However, the use of concealment is examined by adopting the counter-accounting approach through which this research compares the disclosures against the reporting requirements with which the airline claims compliance. In other words, this research proposes that the real extent of

emissions disclosure can be measured using the following simple formula: *Extent of emissions reporting = Reported emissions disclosures – Non-compliance with disclosure requirements.* While the use of counter-accounting has remained relatively uncommon in academic research (Talbot and Boiral, 2018), this study employs quantitative content analysis to operationalise it through which the types of non-compliance (i.e., concealment strategies) are identified and measured. This method, often associated with (post)positivist tradition, is commonly used in impression management studies that are grounded in agency theory (Merkl-Davies and Brennan, 2007). Specifically, this procedure aims to address the first research question of this dissertation

3.3.3 Impression management executed as symbolic management

To address the second research question, a shift towards alternative perspectives with more qualitative analysis is necessary to uncover how impressions are constructed (Merkl-Davies and Brennan, 2011). Respectively, the theoretical framework is expanded with the sociological perspective, which views reporting through the lens of legitimacy theory, institutional theory, and stakeholder theory, believing that companies disclose information about organisational outcomes as a means to respond to stakeholder concerns or demonstrate organisational legitimacy, i.e., aligning with social expectations (Merkl-Davies and Brennan, 2011). However, in the absence of positive climate-change news, companies may resort to impression management, conceptualised as *symbolic management*, which makes organisational emissions-related performance or institutionalised reporting practices appear to comply with social expectations (Herbohn, Clarkson and Wallis, 2022).

The literature provides various examples of symbolic management strategies (Ashforth and Gibbs, 1990; Merkl-Davies and Brennan, 2011; Herbohn, Clarkson and Wallis, 2022), some of which were covered in the literature review chapter (section 2.2.6.2). The present dissertation concentrates on exploring the airlines' use of *ceremonial conformity* and defensive impression management, namely the use of *neutralisation techniques*.

The previously mentioned counter-accounting exercise is expected to shed light on the presence of ceremonial conformity in two ways. Firstly, if the results of the counter-accounting uncover airlines failing to adhere to claimed standards-based reporting requirements, their adherence to such standards may be perceived as ceremonial. Secondly, if reports assert third-party audits to verify emissions disclosure according to standards but are found non-compliant, then the involvement of external auditors in the reporting process may also be viewed as ceremonial.

Additionally, airlines are expected to utilise a type of symbolic management that previous literature has labelled as *normalising accounts* (Merkl-Davies and Brennan, 2011) or *offering accounts* (Ashforth and Gibbs, 1990) aimed at distancing the company from negative climate change outcomes or minimising and legitimising their occurrence in the eyes of stakeholders. Generally, such strategies are referred to as *defensive impression management* (Bolino *et al.*, 2008) or *protective impression management* (Hooghiemstra, 2000), whose use is associated with negative disclosure. For consistency, the term defensive impression management will be used hereafter.

Defensive impression management differs from strategies widely referred to as proactive (or acquisitive) impression management, which are mainly used in the context of successful or desired organisational outcomes (Hooghiemstra, 2000). While the present dissertation is expecting to find evidence of defensive impression management employed in airlines' emissions statements as they inherently represent negative disclosure, some of the tactics associated with proactive impression management can also be defensive in nature, depending on their use. For example, Cooper and Slack (2015) delineate the earlier discussed concealment strategies that use selectivity and performance comparisons as proactive tactics, with the former involving the presentation of performance figures in a favourable manner and the latter entailing the selection of benchmarks that make the current performance appear favourably. Another tactic often grouped within proactive strategies is *self-promotion*, where the report preparer focuses on itself (Bolino *et al.*, 2008) by emphasising its competencies, qualities, abilities, and experience (Cooper and Slack, 2015). However, as demonstrated later in this chapter, highlighting such attributes can also be perceived as an act of self-proclamation, used defensively to distance the firm from others or convince stakeholders of the adequacy of the firm's sustainability.

Generally, defensive impression management is associated with strategies that comprise 'excuses', 'justifications', and apologies' (Hooghiemstra, 2000). Such tactics are employed reactively to sustain organisational legitimacy in controversial or image-threatening situations (Bolino *et al.*, 2008) by deliberately placing the actor and their actions in a different perspective in the minds of stakeholders (Hooghiemstra, 2000). In the case of excuses, the corporate actor may admit that certain consequences are resulting from wrongdoing while simultaneously denying its responsibility for the said wrongdoing (Hooghiemstra, 2000), sometimes by attributing blame to external factors beyond the organisation's control (Cooper and Slack, 2015). Obviously, such excuses can only work if they are perceived as plausible by the audience (Hooghiemstra, 2000).

On the other hand, justifications entail admitting responsibility for actions, but the severity of their consequences is being consciously downplayed (Hooghiemstra, 2000). Finally, apologies involve corporate actors accepting responsibility for undesirable actions while simultaneously seeking to convince stakeholders that the event is not a fair representation of their true nature (Ashforth and Gibbs, 1990) by expressing some form of remorse (Cooper and Slack, 2015). Apologising acknowledges failures, which is why their use in corporate reporting is rather uncommon (Hooghiemstra, 2000) – although not unprecedented. For instance, Talbot and Boiral (2018) observed instances of energy-sector companies apologising for inadequate emissions disclosure in their sustainability reports while promising to improve their reporting in the future, aiming to mitigate the failure of disclosing negative information.

3.3.4 Neutralisation techniques

Defensive impression management can play a significant role in scenarios where businesses are exposed to social pressures and criticism (Talbot and Boiral, 2015). It can be closely associated with neutralisation theory and its related techniques of neutralisation, which are cognitive devices employed by social actors to justify, excuse, or in some other way, rationalise behaviours that deviate from prevailing social norms (Fooks *et al.*, 2013). It is worth mentioning that the relevance of neutralisation theory and its techniques emerged during the preliminary analysis for this dissertation, guiding the research to explore this phenomenon further (Johansson, 2021).

Neutralisation techniques were originally introduced and researched by Sykes and Matza (1957) in the context of how juvenile delinquents justified their unlawful actions. In this context, the authors postulated that justifications could work in two ways: delinquents can either 1) 'rationalise' their behaviour after committing the rule-breaking act or 2) 'neutralise' their feeling of guilt before committing the act that is viewed deviant from socially accepted norms. However, the distinction between rationalisation and neutralisation has narrowed down over time, and a growing number of studies have used the term 'neutralisation' both in ex-ante and ex-post justifications (Kaptein and van Helvoort, 2019).

Essentially, the neutralisation theory seeks to provide an explanation for the paradox of why individuals who believe in social norms deviate from them while having seemingly little or no guilt over their behaviour (Kaptein and van Helvoort, 2019). The basic explanation here is that those engaging in deviant behaviour view the norms as 'qualified guidelines' rather than 'categorical imperatives' and learn to employ techniques of

neutralisation so that they can violate the norms they generally believe in (Sykes and Matza, 1957). These techniques entail the use of linguistic devices to convince oneself and others about the acceptability of deviating from the norms under certain conditions, which could otherwise be considered immoral (Kaptein and van Helvoort, 2019). In doing so, the deviant actor "remains committed to the dominant normative system and yet so qualifies its imperatives that violations are 'acceptable' if not 'right'" (Sykes and Matza, 1957, p. 667).

While not an exhaustive list, Sykes and Matza (1957) originally identified and introduced five techniques of neutralisation used by juvenile delinquents: 1) denial of responsibility, 2) denial of harm or injury, 3) denial of the victim, 4) appeal to higher loyalties, and 5) condemnation of condemners, which together are also known as the 'famous five' (Kaptein and van Helvoort, 2019; Bhatia, Lau and Baldwin, 2021). Subsequent research has complemented the famous five by identifying other neutralisation techniques and applying them in other contexts of offence (see Table 1 on the following page). While such research has traditionally been restricted to criminology and sociology (Christensen, 2010) and generally to the level of the individuals (Karidio and Talbot, 2020), a growing body of research has also begun to apply neutralisation theory to the corporate context.

According to Boiral (2016), neutralisation techniques, in the corporate context, can be generally understood as the strategic release of information with the aim of rationalising and legitimising, through various socially acceptable arguments, the occurrence of unethical behaviours, negative impacts or other issues that could undermine the reputation of an organisation, its management or employees. Within this framework, neutralisation theory has provided a perspective to understand problems such as workplace deviance (Lim, 2002), the legitimisation of products that cause harm to their consumers (Fooks *et al.*, 2013), and, more recently, ways in which corporate actors rationalise their unsustainable practices (e.g., Talbot and Boiral, 2015, 2018; Boiral, 2016; Chassé *et al.*, 2017; Karidio and Talbot, 2020; Filimonau *et al.*, 2022).

Table 1 Neutralisation techniques in the context of an individual

Technique	Description	Source
Denial of responsibility	Social actor proposes that harmful behaviour results from forces beyond their control.	Sykes and Matza (1957)
Denial of harm	Social actor asserts that their behaviour does not cause significant harm or that its significance is debatable.	Sykes and Matza (1957)
Denial of victim	Social actor either claims the victim deserves the harm done to them or takes advantage of the victim being absent or unknown.	Sykes and Matza (1957)
Condemnation of condemner	Social actor questions the condemners' motives or asserts that those labelling the behaviour as deviant lack moral authority due to their own deviant acts.	Sykes and Matza (1957)
Appeal to higher loyalties	Social actor argues that their actions are justified because they align with the norms of their subgroup, which they believe take precedence over the expectations or rules of the larger society or the interests of those harmed.	Sykes and Matza (1957)
Metaphor of ledger	Social actor offsets their deviant act by placing it in the context of their overall behaviour, highlighting that their past actions have been more good than bad.	Klockars (1974)
Defence of necessity	Social actor mitigates their guilt by asserting that their rule-breaking actions are necessary under constraining circumstances.	Minor (1981)
Diffusion of guilt	Social actor argues that criminalising an individual's behaviour is unfair when "everybody's doing it".	Coleman (1989)
Justification by comparison	Social actor justifies their actions by comparing their crimes to more serious offences.	Cromwell and Thurman (2003)
Postponement	Social actor momentarily sets aside their feelings of guilt to address them later.	Cromwell and Thurman (2003)

Source: Own compilation, based on the resources provided in the table.

In many cases, the techniques of neutralisation used by corporate actors are the same as those used by individual actors (Whyte, 2016). For instance, Meesters and Behagel (2017) examined the river diversion of a Mongolian mining project by interviewing representatives from the mining company. Their analysis highlighted the mining company's tendency to legitimise their project's impact on the local community by downplaying its effects before the river diversion and attributing its post-diversion droughts to global warming and local pastoralists, whose lives were adversely affected by the river diversion. The authors associated these neutralisation techniques with the *denial of injury* (minimising harm), *denial of responsibility* (claiming harm is beyond their

control), and *denial of victim* (dismissing victims' status), originally proposed by Sykes and Matza (1957). Moreover, the authors observed the company's justification of the river diversion under the guise of water loss prevention, while the true motive lay in extending the mining pit, thus linking the justification with another neutralisation technique, *defence of necessity*, originally posited in the context of criminology by Minor (1981).

In another study, Karidio and Talbot (2020) delved into the use of neutralisation techniques by a uranium company amidst its failed mining project in Quebec, Canada, which faced confrontation with environmental pressure groups. Their analysis of the company's annual reports, official press releases, and media coverage revealed that the company had resorted to various neutralisation techniques during the project, one of which was *appealing to higher loyalties*, originally outlined in Sykes and Matza (1957), which involves justifying actions by claiming alignment with the subgroup's norms in which the actor belongs. The use of this technique was reflected in the uranium company's public communication at the beginning of the project, as the company constantly reiterated its stakeholders' support for it, by which it sought to justify its project to the wider public.

Interestingly, in a survey of food waste among Spanish restaurant owners and managers, Filimonau *et al.* (2022) found evidence suggesting that managers' tendency to *appeal to higher loyalties* may, in certain instances, have adverse effects on the managers' intentions to become more sustainable. This may occur when managers fear that corrective measures could lead to consumer resentment, for example, when restaurant guests are asked to save food from waste. On the other hand, their survey showcased the managers' inclination to defend their inaction towards food waste reduction by referring to the small scale of the problem and appealing to the low awareness of the environmental implications, which can be respectively associated with the techniques of *denial of injury* and *denial of responsibility*.

Filimonau and his colleagues (2022), citing Chatzidakis *et al.* (2004), also highlighted that normative behaviours for what is considered appropriate, deviant or irrelevant can vary across different contexts and, therefore, different neutralisation techniques may prevail in different settings. Indeed, the existing research indicates that some neutralisation techniques can be distinct to the corporate context, many of which are summarised in Tables 2-3 (see pp. 86-87).

In studies such as Talbot and Boiral (2015) and Chassé *et al.* (2017), which respectively interviewed representatives of large emitters and SMEs in Canada about sustainability efforts, findings revealed that while companies resort to denying or minimising their impacts (i.e. *denial of harm*) to rationalise their lack of sustainability commitments, they also employ other neutralisation techniques that are more inherent to the corporate context. For instance, both studies found firms inclining to *self-proclaim excellence* (or sustainability). While the use of such a technique does not directly deny or acknowledge the adverse impacts the firms may have, the authors assumed its use to serve the purpose of distinguishing companies from others (Talbot and Boiral, 2015) or asserting to others that their sustainability efforts are adequate (Chassé et al., 2017), whose underlying intent may be to influence discourses regarding future regulations or controls.

Corporate actors' use of neutralisation techniques has also recently been explored in the context of non-financial reporting (Boiral, 2016; Talbot and Boiral, 2018; Talbot and Barbat, 2020; Boiral *et al.*, 2022). Alongside the techniques aimed at denying or minimising perceived sustainability impacts, these studies have unveiled a spectrum of additional strategies that companies employ in corporate reporting to justify their unsustainability, such *as diluting responsibilities* with other stakeholders (e.g. Boiral, 2016) or rationalise unethical business practices following notable scandals (Boiral *et al.*, 2022). Furthermore, Talbot and Boiral's (2018) analysis of emissions disclosure in the energy sector found evidence indicating that companies attempt to rationalise their failures in releasing specific information (labelled as *minimising the impact of non-measured emissions* and *excuses and future commitments*), potentially aimed at deliberately limiting the disclosure, which can be seen as a technique specific to the reporting context.

Table 2 Neutralisation techniques in the context of corporations

Technique	Description	Source
The world has moved on	Corporate actor suggests that shifts in public attitudes, rather than their own behaviour, are the cause of public condemnation.	Fooks et al. (2013)
Self-proclaimed excellence	Corporate actor does not deny or minimise the impact of their actions but claims to stand out by their commitment and performance in the field.	Talbot and Boiral (2015)
Promotion of a systemic view	Corporate actor stresses that companies ought not to be solely judged based on their environmental performance, as their overall operations positively contribute to society.	Talbot and Boiral (2015)
Denouncing unfair treatment and deceptive appearances	Corporate actor criticises simplistic interpretations of their environmental impacts, arguing that such assessments do not accurately reflect the complex realities within which companies operate.	Talbot and Boiral (2015)
Economic and Technological Blackmail	Corporate actor emphasises economic and/or technological constraints associated with environmental commitments.	Talbot and Boiral (2015)
Blaming others	Corporate actor seeks scapegoats and directs attention to the actions of other actors, indirectly legitimising its own lack of response to its impact(s).	Talbot and Boiral (2015)
Claim of net positive or neutral impact	Corporate actor asserts that the environmental harm is or will be corrected or balanced. By overlooking the negative impact, the corporate actor emphasises its environmental responsiveness or neutral impact.	Boiral (2016)
Distancing from the reported impact	Corporate actor situates the negative impacts within a broader framework, notably considering time and space, or focuses on the uncertainties surrounding the impacts or the legality of corporate operations.	Boiral (2016)

Source: Own compilation, based on the resources provided in the table.

Table 3 Neutralisation techniques in the context of corporations (continues)

Technique	Description	Source
Dilution of responsibilities	Corporate actor suggests that responsibilities for the impacts are beyond their control, as the sum of actions by various actors and circumstances cause them.	Boiral (2016)
Prioritisation of economic survival	Corporate actor claims that they must assume more important responsibilities related to the future of their organisation, which may not align with a significant commitment to sustainable development. The lack of commitment is justified by potential negative consequences linked to financial performance or economic uncertainties.	Chassé and Boiral (2017)
Minimising the impact of non-measured emissions	Corporate actor downplays the significance of unmeasured emissions either by highlighting the importance of other sources of emissions and the insignificance of the unmeasured elements and/or asserting that this practice is widespread in the industry.	Talbot and Boiral (2018)
Excuses and future commitments	Corporate actor apologises for the non-disclosure of certain information and promises significant improvements to the measuring system in the forthcoming years.	Talbot and Boiral (2018)
Relativizing negative information	Corporate actor does not deny their unsustainable performance but contextualises it over time and within a particular environment by considering other measures or elements.	Talbot and Barbat (2020)
Condemning the government	Corporate actor blames the government for its lack of clarity, inconsistent stance, and indecisiveness regarding sustainability issues, which result in negative consequences.	Karidio and Talbot (2020)
Compliance with regulatory standards	Corporate actor claims compliance with current regulatory standards to assert their integrity and, thus, implicitly downplay their significant adverse impacts.	Boiral *et al.* (2022)

Source: Own compilation, based on the resources provided in the table.

It is worth noting that while some of the neutralisation techniques seem more relevant to the corporate than individual context, which is likely to be explained by the differences between individual and organisational behaviours (Karidio and Talbot, 2020), many of the techniques used by corporate actors can be indirectly related to those identified at the individual level. For example, the technique labelled as *economic and technological*

blackmail used to rationalise large corporations' negative climate impacts can be related to the *defence of necessity* or *appeal to higher loyalties* (Talbot and Boiral, 2015). Similarly, the technique called *condemning the government* to describe the neutralisation used in a conflict situation between a company and its local government (Karidio and Talbot, 2020) mirrors Sykes and Matza's (1957) originally introduced technique of *condemnation of the condemner*.

In addition to the overlaps between different neutralisation techniques found in the literature, it is worth noting that some neutralisation techniques are also known by different names despite referring to the same rhetorical strategies (Kaptein and van Helvoort, 2019). For instance, where Boiral (2016) referred to the neutralisation technique where corporate actors place their negative impacts in a broader space or time context as *distancing from the reported impact*, Talbot and Barbat (2020) called similar rhetoric in reporting *as relativising negative information.* Similarly, the previously mentioned technique of *dilution of responsibilities* (Boiral, 2016) is called *transfer of responsibility* in Chassé and Boiral (2017).

Be that as it may, neutralisation theory and the neutralisation techniques identified in prior literature provide a framework within which the present dissertation can explore the airlines' potential defensive impression management strategies used to justify their adverse climate impact. These techniques are identified and categorised using a thematic analysis with a deductive approach. Thematic analysis, associated with the critical research tradition (Braun and Clarke, 2021), is well-suited for this dissertation's aim of critically assessing airlines' emissions disclosure. Moreover, it is a pragmatic choice, particularly suited for studies conducted by one researcher seeking to triangulate the method with other qualitative techniques (Braun and Clarke, 2021). In the present dissertation, the thematic analysis is complemented by methods deriving from CDA focusing on the grammatical meanings within the discourse where neutralisation techniques are identified.

3.3.5 Impression management executed as accounting rhetoric

The rationale for incorporating methods from CDA into the inquiry of neutralisation techniques stems from a critical perspective that conceptualises impression management in the context of corporate reporting as *retrospective rationality and accounting rhetoric* (Merkl-Davies and Brennan, 2011). Merkl-Davies and Brennan (2011) broadly describe retrospective rationality and accounting rhetoric in their original conceptual framework. In abstract terms, retrospective rationality involves presenting

organisational outcomes as rational, if not intentional, to maintain legitimacy. In this dissertation, the use of neutralisation techniques is itself understood as retrospective rationality because their use per se assigns rationality to the organisational outcomes. Accounting rhetoric[9], in turn, is understood as the use of language as a tool to persuade organisational audiences about the rationality of organisational actions and outcomes (Merkl-Davies and Brennan, 2011). In this dissertation, this concept is applied to offer an additional perspective to examine not only "what companies say" when justifying their adverse climate impact through neutralisation techniques but also "how they say it", using rhetorical devices like pronouns and the passive voice to influence stakeholders' perceptions (Merkl-Davies and Brennan, 2007).

Consequently, the CDA approach adopted in this research will focus on the micro-level properties in the text, analysing the grammatical and lexical components to deconstruct and understand the representations presented in reporting (see Rajandran and Taib, 2014). The analysis is carried out within Systemic Functional Grammar (SFG), which is widely used by critical discourse analysts who believe that the choice of grammatical configurations can impact the interpretation of meanings (Baker and Ellece, 2011). Notably, the analysis focuses on transitivity, where the major concerns of the analysis are how the firm positions itself and other actors in the text and how it expresses causality and the attribution of responsibility (Fairclough, 1992). How SFG and transitivity analysis are incorporated into the thematic analysis are described in detail in the methodology chapter (Chapter 4).

3.4 Chapter conclusions

This chapter served as a bridge between the literature review and methodology by presenting this dissertation's theoretical framework to address gaps identified in the literature on airline SR, notably the lack of studies assessing the quality of negative disclosures and how airlines employ communication strategies in their reporting to respond to the climate change controversy surrounding them. Consequently, the overarching aim of this dissertation is to critically assess global airlines' emissions reporting practices to enhance our understanding of how an emission-intensive industry

[9] In their conceptualisation, Merkl-Davies and Brennan (2011) describe accounting rhetoric encompassing various ways of using accounting language and measures to bring credibility and legitimacy to organisational outcomes. Their conceptualisation includes also ways how companies confirm to social ideologies and maintain dominant discourses as part of their rhetoric inventory to persuade organisational audiences of the legitimacy of managerial actions and decisions. In the present dissertation, the conceptualisation is, however, applied more narrowly, by focusing on how the linguistic properties in the text can persuade or otherway influence the reader (see Fairclough, 1992; van Dijk, 1995; Rajandran and Taib, 2014).

demonstrates its accountability for climate impact. The concept map below (Figure 4) visualises this dissertation's theoretical framework, i.e. how this dissertation approaches this inquiry. A written summary of the framework follows the concept map.

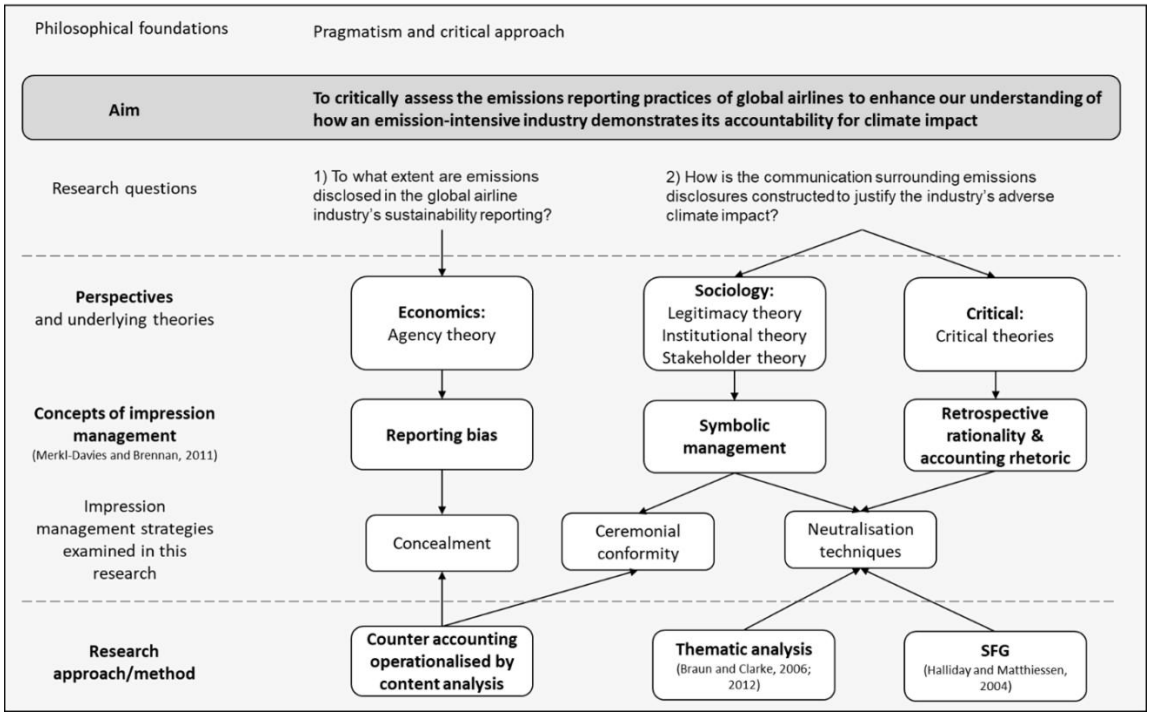

Figure 4 Concept map of the dissertation

The reviewed literature (e.g. Herbohn, Clarkson and Wallis, 2022) provided indications that airlines without positive climate-change news, i.e., firms without substantial emission reductions, may find it difficult to provide honest accounts of their emissions, leading them to limit or justify their negative disclosures to shape stakeholders' perceptions of their sustainability to maintain corporate legitimacy. Accordingly, these propositions are considered in the research questions that guide this research in assessing the extent of airlines' emissions disclosure and exploring how the communication around these disclosures is constructed to justify the industry's adverse climate impact.

This chapter first discussed the philosophical underpinnings that delineate the thinking behind this research and how the research aim and its questions are approached. Academically, this research can be identified with the pragmatic research paradigm, infused with a critical perspective. Ontologically, it prioritises the imperative of enhancing emissions reporting over philosophical purity by seeking to expose potential contradictions in SR practices regarding accountability, which also reflects the author's axiological stance on how his values are allowed to guide the research. Epistemologically, the study aims to minimise subjectivity where possible while

recognising that examining communication involves analysing socially constructed meanings that require interpretation.

Typical of a pragmatic paradigm, this dissertation assesses airline emissions disclosure from multiple angles (see Lim, 2023). This is achieved by combining different theoretical perspectives – economics, sociology, and critical theory – which complement each other by referring to different theories that postulate why companies share information about their emissions with stakeholders. Essentially, the central postulation in all these perspectives is that companies release information about their organisational outcomes to safeguard corporate legitimacy (Chen and Roberts, 2010), i.e. to demonstrate that the company's actions align with the expectations of different stakeholder groups (see Palazzo and Scherer, 2006). However, in the absence of positive climate-change news, airlines may resort to impression management to either limit or justify their negative disclosures, thereby creating the impression that they align with the expectations.

Depending on the abovementioned theoretical perspectives, impression management can be conceptualised differently, i.e., reporting bias, symbolic management, and retrospective rationality and accounting rhetoric, each with different consequences for emissions reporting (Herbohn, Clarkson and Wallis, 2022). These conceptualisations originate from the conceptual framework of impression management proposed for accounting research by Merkl-Davies and Brennan (2011), which this dissertation adapts to explore the strategies airlines may use to limit or justify their negative emissions disclosure.

To briefly reiterate the conceptualisations covered in this chapter, from the economics perspective, airlines are assumed, based on agency theory, to release information on their emissions to reduce information asymmetries between the company and stakeholders, mainly shareholders, who may otherwise become uncertain whether the companies are aligned with their interests. However, in the absence of positive climate change news, companies may exploit information asymmetries by using impression management, conceptualised as reporting bias, which involves concealing negative information while creating the appearance of full disclosure. This dissertation examines the presence of concealment by adopting a counter-accounting approach, operationalised by content analysis, through which the research assumes to provide a more balanced assessment of the extent of airlines' emissions disclosure.

From a sociological perspective, airlines are expected (based on legitimacy, institutional, and stakeholder theories) to disclose information on their emissions in response to

stakeholders' concerns and expectations. In the absence of positive climate change news, companies may engage in impression management, conceptualised as symbolic management, using strategies that make their reporting practices and negative disclosures appear to address these expectations. The presence of two such strategies is examined in the present dissertation. First is ceremonial conformity, where a company claims to have implemented certain salient practices without actual substance (Ashforth and Gibbs, 1990). Specifically, airlines are assumed to enhance the credibility of their emissions disclosures by adhering to externally established reporting standards and validating them through external third-party audits. If non-compliance with the reporting standards is revealed through the counter-accounting procedure, adherence to the standards may be considered ceremonial. Similarly, if a third-party audit verifies compliance yet still shows discrepancies, the audit itself may also be regarded as ceremonial.

The second symbolic management strategy observed in this dissertation relates to the use of defensive impression management, namely the use of neutralisation techniques, through which companies justify, excuse, or in some other way, rationalise their negative organisational outcomes (Fooks et al., 2013). Examining the use of these techniques enhances our understanding of how communication is structured around emissions disclosures to justify companies' adverse climate impact. In this context, it is essential not only to analyse "what airlines say" but also "how they say it." Given that all business communication inherently serves a rhetorical purpose, analysing the use of accounting rhetoric reveals how airlines choose to represent themselves in communication (Font, Elgammal and Lamond, 2017) when neutralisation techniques are employed and how the language therein is used to persuade organisational audiences about the legitimacy of the negative climate-change outcomes (see van Dijk, 1995; Merkl-Davies and Brennan, 2011). The neutralisation techniques are identified and analysed using thematic analysis, combined with an analysis concentrating on the text's lexico-grammatical meanings using SFG.

Finally, it is important to emphasise the significance of the concepts employed in this research as part of its theoretical framework, not only in addressing the research questions of this study but also in the broader context of analysing sustainability reporting. While examining the extent of non-compliance (i.e. reporting bias executed as concealment) might provide actionable insights for practitioners, uncovering the extent of non-compliance is also expected to have theoretical implications, potentially challenging the conclusions of numerous existing quantitative studies or offering

alternative perspectives to interpreting their findings. For example, conclusions drawn from causal research rooted in the same theories presented as part of this dissertation's theoretical framework may oversimplify the complex phenomenon of SR without considering impression management. For instance, in the context of airline SR, firm size and leverage have been suggested, according to agency theory, to impact the adoption and extent of GRI-based reporting (Karaman, Kilic and Uyar, 2018), while institutional theory has been used to elucidate the influence of certain macro-level factors on such reporting (Kılıç, Uyar and Karaman, 2019). However, while shareholder, stakeholder, and institutional pressure are likely to condition airlines' decisions to disclose information or the extent of disclosure, such studies tend to overlook the possibility that disclosure may, at least in part, be driven by impression management, where airlines aim to give the appearance of releasing information in full when in fact they are not doing so.

Also, although neutralisation techniques seem to be generally under-researched in the context of SR (Boiral, 2016; Talbot and Barbat, 2020) and emissions disclosures particularly (Talbot and Boiral, 2015, 2018), it has remained unexplored how airlines may use them to respond to climate-change controversy. Whether the underlying rationale for justifications relates to impression management or alternative explanations, revealing justifications in SR is important, especially in an industry where significant emission reductions are unlikely in the near future. As Ashforth and Gibbs (1990) have highlighted, businesses that attempt to increase legitimacy through symbolic means may trigger a series of vicious cycles. In such cycles, the stakeholders may become sceptical about the company's actions, which may motivate companies for subsequent symbolic practices, resulting in further scepticism and ultimately decreasing legitimacy. On the other hand, uncovering and highlighting defensive impression management practices is also essential from the critical perspective because continuous justifications for the climate impact are likely to perpetuate the status quo (see Merkl-Davies and Brennan, 2011; Lehman and Kuruppu, 2017).

It should also be highlighted that while neutralisation techniques have been described to entail the use of linguistic devices (Kaptein and van Helvoort, 2019), prior research seems to have overlooked how lexico-grammatical components are used in the text to position corporate actors and their actions differently in the minds of stakeholders. In this regard, this dissertation adopts a novel approach to examining accounting rhetoric by combining thematic analysis with an analysis of the text's grammatical meanings using SFG.

This chapter has discussed theories explaining corporate SR behaviour and their associated concepts of impression management that can be used to examine how corporate actors may limit or justify their negative disclosure. In the following chapter, the focus shifts to how this examination is operationalised within the context of airline SR.

Chapter 4
Methodology

4.1 Introduction

This chapter outlines the procedures undertaken in this dissertation to investigate the research questions within the theoretical framework presented in Chapter 3. It begins by restating the dissertation's main aim and research questions, as well as the objectives that were formulated to guide the research in addressing these questions. Subsequently, the chapter provides a detailed description of the data selection process and the analytical methods used to achieve the research objectives. For convenience, the methodological procedure is also depicted in Figure 5 below.

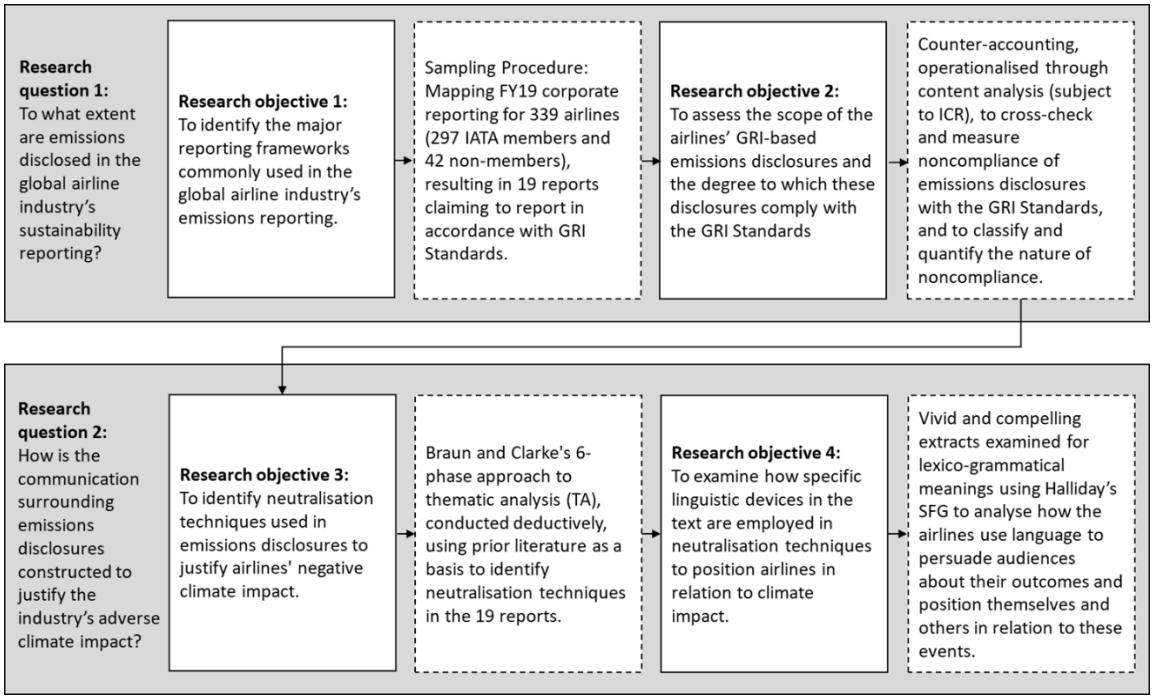

Figure 5 Summary of the research methodology

4.2. Research aim and research questions

This dissertation's overarching **aim is to critically assess the emissions reporting practices of global airlines to enhance our understanding of how an emission-intensive industry demonstrates its accountability for climate impact**.

The research questions were already outlined as part of this dissertation's introduction and mentioned again in the following chapters. For ease of reference, they are reiterated here:

1) To what extent are emissions disclosed in the global airline industry's sustainability reporting?
2) How is the communication surrounding emissions disclosures constructed to justify the industry's adverse climate impact?

Typical of research associated with the pragmatic research tradition, this research adopted a mixed-methods approach to address its broad aim and above-presented research questions from different angles (Creswell, 2014; Lim, 2023). More specifically, the approach resembles that of the explanatory sequential research design (Creswell, 2014), consisting of two phases: a quantitative phase (Phase 1) and then a qualitative follow-up phase (Phase 2). Following Creswell (2014), the analysis and interpretation will follow the form of reporting first on quantitative findings (section. 5.2) and then on the qualitative findings (section 5.3). The benefit of choosing this research design is that its first phase informs the second phase about the sample and areas worth examining more in-depth (Creswell, 2014).

In this dissertation, the initial aim of Phase 1 was to identify and quantify the number of airlines that report emissions as part of their corporate reporting. This process also served as a sampling procedure to identify the major reporting frameworks used by the industry, enabling the research to focus on assessing the extent and compliance of emissions reporting under one significant reporting framework. As a result, this research focuses on measuring emissions reporting and compliance for airlines that claim to report under the GRI Standards. Phase 2, in turn, builds on this research more qualitatively by exploring how the GRI signatories construct their communication surrounding their emissions disclosures to justify their climate impact.

4.3. Research objectives

Building upon the aforementioned aim, research questions, and theoretical framework outlined in the preceding chapter, this research was guided by the following research objectives:

1) To identify the major reporting frameworks commonly used in the global airline industry's emissions reporting.

2) To assess the scope of the airlines' GRI-based emissions disclosures and the degree to which these disclosures comply with the GRI Standards
3) To identify neutralisation techniques used in emissions disclosures to justify airlines' negative climate impact.
4) To examine how specific linguistic devices in the text are employed in neutralisation techniques to position airlines in relation to climate impact.

Objectives 1 and 2 were developed to operationalise this dissertation's first research question. Objectives 3 and 4, in turn, were developed to operationalise its second research question. The following sections of this chapter will detail how the objectives have informed the data collection and analytical methods of this research and how these methodological choices, in turn, have been used to answer the research questions under Phases 1 and 2.

4.4. Phase 1: Quantitative phase

This phase assesses the extent of emissions disclosure in the global airline industry's SR. It is worth highlighting that the quantitative phase in this dissertation is largely descriptive and does not involve hypothesis testing based on theories, which is inherent to many quantitative studies. Instead, the theory is seen as providing a lens to the inquiry. As discussed in the literature review and as part of this dissertation's theoretical framework, agency theory suggests that companies disclose organisational outcomes, such as information about their emissions, to reduce information asymmetry between the firm and outsiders (Merkl-Davies and Brennan, 2011). In this regard, using established reporting frameworks like the GRI is thought to increase the credibility of these disclosures (e.g., Karaman, Kilic and Uyar, 2018). However, taking a critical stance, this dissertation questions the airlines' real accountability. It proposes that companies without positive climate-change news might exploit information asymmetry through impression management, conceptualised as reporting bias, by concealing the negative information while creating the appearance of full disclosure, thereby gaining credibility from the established reporting standards. Consequently, this dissertation suggests that when assessing the extent of emissions disclosure, the extent of compliance with the reporting standard followed should also be taken into account.

As discussed in the literature review (section 2.2.4), companies can subscribe to several major reporting frameworks, i.e. the GRI, SASB, TCFD, and CDP, when disclosing their emissions information. The decision to assess the airline industry's emission reporting within the context of the GRI reporting was not a straightforward choice in this

dissertation. The aim was to analyse the industry's reporting as broadly as possible while simultaneously narrowing the research scope to a single reporting framework, representing the industry's most widely used emissions reporting standard. Subsequently, to guide the sample selection in this dissertation, the first research objective was developed: **To identify the major reporting frameworks commonly used in the global airline industry's emissions reporting**. Consequently, the sampling procedure associated with this objective is described next.

4.4.1 Sample and data collection

This dissertation focuses on the global passenger airline industry's emissions disclosure, whose primary business is to fly scheduled and non-scheduled revenue flights. Hence, companies whose primary business is to operate on-demand flights (i.e. commercial business aviation and private charter) (ICAO, 2009) or cargo-only flights were excluded from this research.

The inclusion of airlines' emissions reporting into further descriptive analysis was also considered to be subject to two further criteria. For linguistic reasons, the disclosures had to be published in English. It was also decided that the disclosures taken to scrutiny would need to cover information from the airlines' operational year 2019. This decision was made to assess the extent and quality of the emissions disclosure from a recent point in time, which, at least, for the most part, would not be overshadowed by the COVID-19 pandemic that severely disrupted the industry (Gössling, Scott and Hall, 2021).

In order to get a general picture of the industry's emission reporting activity, the initial target population was obtained from IATA's (2020) annual review, comprising 297 airlines. This list was complemented with airlines (n=42) from the Skytrax ranking organisation's list[10], (skytraxratings.com/airlines, extracted on Oct 10, 2020), as some airlines, especially low-cost carriers, are not IATA members. The airlines' reporting activity was identified from several online sources, including annual reports and sustainability reports downloaded from the firms' official websites, the GRI Sustainability

[10] Skytrax is a ranking organisation classifying airlines by their quality of product and staff service standards: https://skytraxratings.com/airlines

Disclosure Database[11], and CDP's responses page (cdp.net/en/responses/) between December 2020 and May 2021.

Cargo airlines (n=25), wet leasing companies (n=4), private charters (n=1), and airlines that had ceased their operations (n=8) during data collection were excluded from the sample. Additionally, 17 airlines were excluded as their websites provided corporate reporting information in a language other than English, making it difficult to confirm their content. After the online search, it was identified that 125 out of 284 airlines were represented in corporate reports. However, 44 of these airlines were included in combined reports reflecting the activities and outcomes of their affiliated groups rather than being reported separately. Therefore, the number of distinct companies reporting was 81, not 125.

In order to determine if the remaining 81 companies had disclosed information about emissions, each report's initial and index pages were examined to locate pertinent disclosures. If information was not found, the remainder of the report was read. For this study, a company was considered to report on airline emissions if they had at least disclosed Scope 1 emissions, i.e. direct emissions from sources owned or controlled by the reporting company (WBCSD and WRI, 2015). Fifty-one of the 81 reports fulfilled this criterion, meaning that around 63% of the companies that conducted corporate reporting in FY19 and published their report in English also released information about their direct carbon emissions.

Further analysis indicated that the most widely used reporting framework for reporting emissions was the GRI, utilised by 28 reports, of which 20 claimed compliance with the GRI Standards, and nine referred to its application without the compliance statement. Six reports aligned their emissions reporting with SASB, and five reports with the recommendations of TCFD. Also, 23 companies responded to the CDP's climate survey.

As for the remaining part of the study, emission disclosures from reports that claimed compliance with the GRI Standards were selected for analysis. The decision was made for two main reasons. Firstly, the GRI Standards are argued to facilitate the recognition of reports with the highest disclosure standards (Talbot and Boiral, 2018; see also Brown, de Jong and Levy, 2009; Liu, Jubb and Abhayawansa, 2019). Companies that claim compliance with the GRI Standards' 2016 edition can choose to do so at the

[11] As of April 2021, the database has no longer been available (https://schwery.com/gri-database-a-valuable-tool-soon-to-disappear/)

Comprehensive or *Core* level. The major difference between the two options is the scope of disclosures. Where the reports claiming compliance with the Comprehensive option must report all topic-specific GRI disclosures for each material topic, the reports claiming compliance with the Core option can choose "not to report every disclosure for a given topic [but] is expected to select and report the disclosure(s) that most adequately reflect its impact on that topic" (GRI, 2018a, p. 22). Regardless of the adherence level, if an organisation claiming compliance with the GRI is unable to report the required disclosures, they must provide a GRI-approved reason for the omission of that disclosure[12]

It should be noted that organisations under the GRI Standard's 2016 edition may also opt for a *GRI-referenced* claim, which can be used if a company wishes to report only on selected topic-specific impacts but is not looking to use the GRI Standards to provide a complete picture of its material topics and related impacts (GRI, 2018a). Such reports (n=8) were excluded from the sample based on the understanding that when a company opts for this claim, they are not obliged to meet all the disclosure requirements outlined by the GRI Standards. Consequently, assessing the compliance of such disclosures was deemed inherently not applicable, as these companies do not formally commit to meeting the standards.

The second reason for selecting the reports claiming compliance with the GRI was that such reports must disclose the organisation's approach to external assurance (GRI, 2018a). If the report is externally assured, an assurance statement must be either attached to the report or a reference to its location must be made, including a description of what has been or has not been assured.

During the data analysis, it was also noticed that one of the reports had not specified which particular GRI's topic-specific emissions disclosures it had reported, which is why its emission disclosures could not have been checked against the GRI Standards. Hence, this report was removed from the final sample comprising 19 reports. Table 4 page presents the airline reports selected for this analysis, including their domicile and the GRI application level used.

[12] The GRI-approved omissions and their requested explanations are: Not applicable – "Specify the reason(s) why the disclosure is considered to be not applicable"; Confidentiality constraints – "Describe the specific confidentiality constraints prohibiting the disclosure"; Specific legal prohibitions – "Describe the specific legal prohibitions", and; Information unavailable – "Describe the specific steps being taken to obtain the information and the expected timeframe for doing so" (GRI, 2018a, p. 24)

Figure 6 (p. 102) summarises the sampling procedure used. This procedure contributed directly to the first research objective by identifying the major reporting frameworks used in the global airline industry's emissions reporting in FY19.

Table 4 Sampling units of the study

Company name	Country/Territory	GRI Adherence level
Aegean Airlines Group	Greece	Core
Aeromexico Group	Mexico	Core
Air Canada Group	Canada	Core
Avianca Holdings SA.	Colombia	Core
Azul	Brazil	Core
China Airlines	Taiwan	Core
China Eastern Ailines	China	Core
Delta Air Lines Inc.	USA	Comprehensive
EVA Air (Evergreen Group)	Taiwan	Core
Finnair Group	Finland	Core
GOL Linhas Aereas	Brazil	Core
Icelandair	Iceland	Core
Korean Air	South Korea	Core
LATAM Airlines Group SA.	Chile	Core
SAS Group	Sweden	Core
Singapore Airlines Group	Singapore	Core
Thai Airways Group	Thailand	Core
Turkish Airlines Group	Türkiye	Core
Volaris Group	Mexico	Core

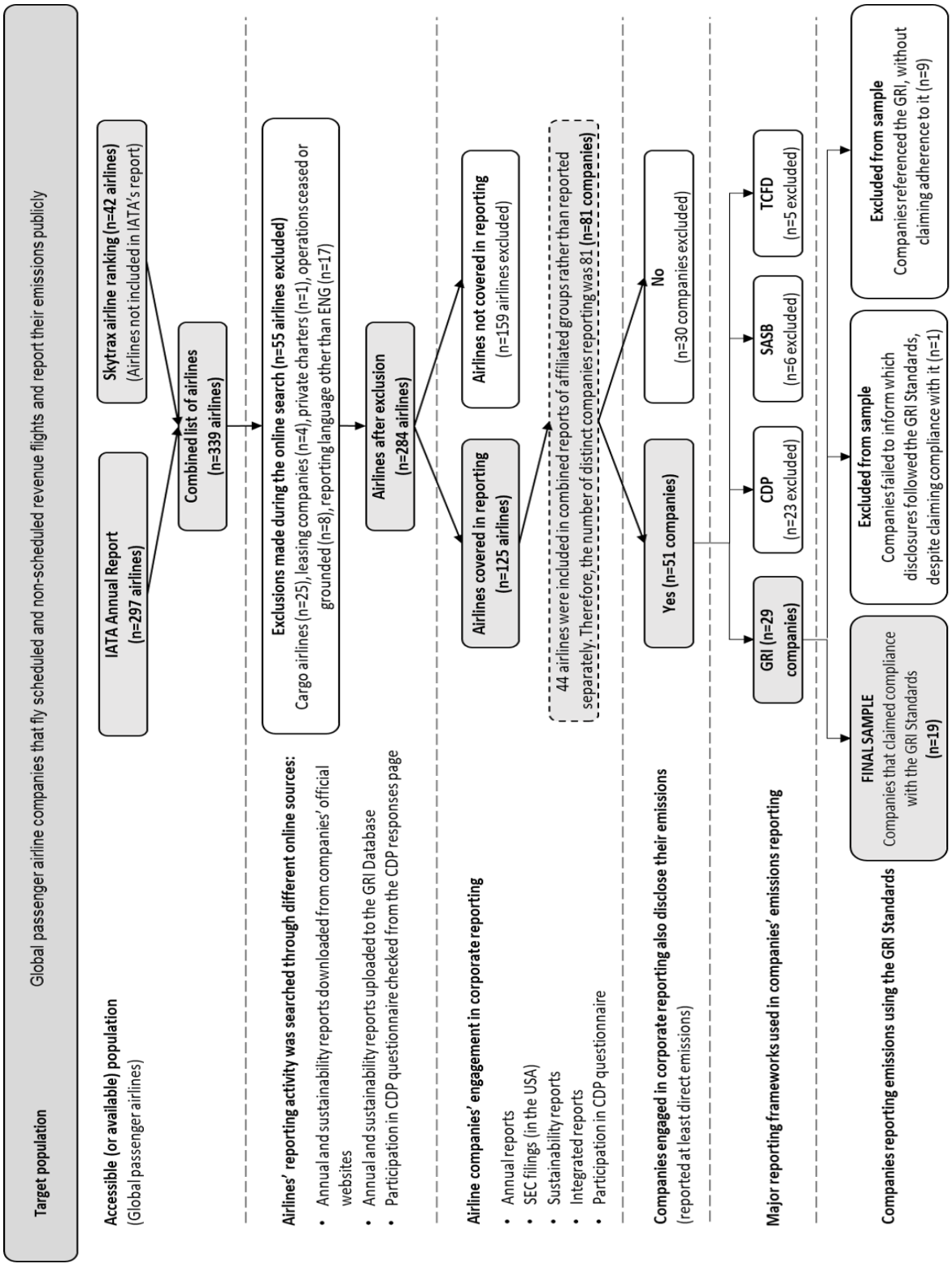

Figure 6 Summary of the sampling procedure

The purpose of Research Objective 1 was not to infer meanings but to explore the usage of reporting standards. In addition, the procedure served as a step in the further sampling procedure. Specifically, it resulted in a sample of 19 airline companies' reports, whose emissions disclosures were further scrutinised to examine their compliance with the GRI

Standards and potential concealment strategies used to delimit the emissions disclosure. Furthermore, the sampling procedure helped identify texts that were further analysed in Phase 2 to uncover neutralisation techniques that airlines may have used to justify negative aspects of their emissions performance.

4.4.2 Content analysis

As proposed in Chapter 3 (section 3.3.2), the real extent of emissions disclosure cannot be measured without considering the possible non-compliance with the disclosure requirements. In order to measure the extent in a more balanced way, the second research objective was developed: **To assess the scope of the airlines' GRI-based emissions disclosures and the degree to which these disclosures comply with the GRI Standards**.

A counter-accounting approach was adopted in this research to verify the companies' claimed compliance with the GRI Standards in their reported emissions disclosures. This approach, in the area of SR, can be defined as "the process of identifying and reporting information on orgazisations' significant economic, environmental and social issues that comes from external or unofficial sources … in view of verifying, complementing or countering organisations' official reports on their performance and achievements" (Boiral, 2013, p. 1037). However, counter-accounting appears to lack any standardised method for conducting research within its framework, which is why guidance was sought from prior studies. Those studies reviewed in this dissertation's literature review with a counter-accounting agenda, including Boiral (2013), Talbot and Boiral (2018), and Talbot and Barbat (2020), all utilised content analysis. Consequently, the counter-accounting analysis performed in this research sought help from content analysis methodologies. Additionally, content analysis has been defined as providing a means to systematically identify and categorise collected data (Hsieh and Shannon, 2005), which can describe and quantify phenomena (Elo and Kyngäs, 2008). Such means can be considered appropriate for addressing Research Question 1 of this study, which essentially necessitates the research to quantify the GRI-based emissions disclosures used by the airline industry and assess the extent to which these disclosures (do not) comply with its disclosure requirements.

Rather than being a single technique, content analysis comprises a family of analytic approaches (Hsieh and Shannon, 2005). It has been described as "a flexible method [with] no simple guidelines for data analysis" (Elo and Kyngäs, 2008, 113). To increase the reliability of studies employing it, Elo and Kyngäs (2008) recommend that content

analysts describe the analysing process in as much detail as possible to enable the readers to follow the process and procedures of the inquiry. Accordingly, the description of the analysis process performed in this dissertation is presented in Figure 7 (see p. 105), which summarises the steps of content analysis. The analysis process followed the typical sequence of quantitative content analysis studies, which, according to Elo and Kyngäs (2008), are divided into the preparation phase, organising phase, and reporting the analysing process and the results. The preparation phase and organising phase are described in this chapter in detail after the figure.

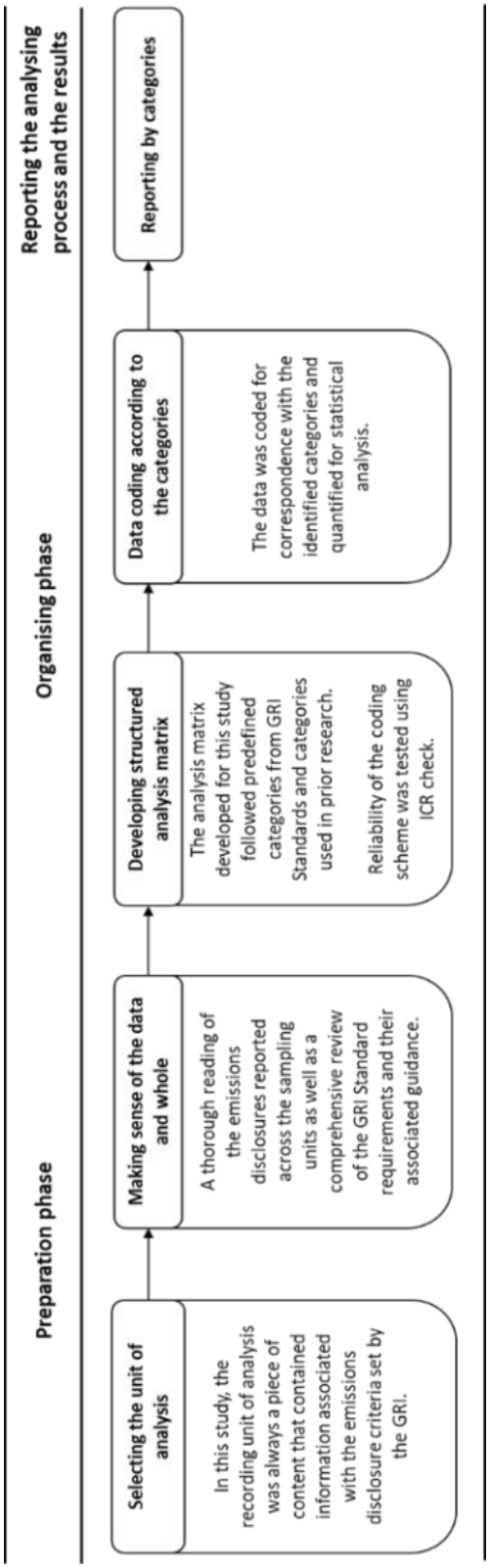

Figure 7 Phases of the content analysis

Based on Elo and Kyngäs (2008)

4.4.2.1 Preparation phase

While there are many forms of content analysis (cf. Neuendorf, 2002; Hsieh and Shannon, 2005), the process often begins with defining the units of analysis (Elo and Kyngäs, 2008; Macnamara, 2018); in other words, pieces of content (text or other observables) that are of interest to the analysis (Krippendorff, 2004). According to Krippendorff (2004), three kinds of units exist in content analysis: sampling, recording, and context units. He further summarises them as serving different analytical functions as follows:

> Sampling units are units of selection and may provide an analyst with a basis for judging the statistical representativeness of data. Recording units are units of description that collectively bear the information that content analysts process and provide the basis for statistical accounts. Context units are units that delineate the scope of information that coders need to consult in characterising the recording units (Krippendorff, 2004, p. 203).

In this study, the 19 reports representing the airline industry's FY19 GRI-based emissions reporting served as the sampling units against which the extent of the industry's reported GRI-based emissions disclosures and adherence to their requirements could be measured. The GRI-based emission disclosures found in the sample units are, in turn, treated as this study's recording units. It is precisely the information found in these units that are subject to coding in content analysis, which can be compared, analysed, and summarised (Krippendorff, 2004), which in this study were used as a basis for making inferences about the extent of the airline industry's GRI-based emissions reporting. Finally, the GRI Standards served as the broader context units within which the emissions disclosures can be analysed, guiding the interpretation and assessment of compliance with the GRI Standards.

Following Elo and Kyngäs (2008), the decision on whether to analyse only manifest content or latent content should also be made in the preparation phase. Here, the former refers to the content visible in the text and the latter to latent messages and potential meanings implied in the text, and the decision on which to take into account has a bearing on how coding should be conducted (Macnamara, 2018). Ultimately, the decision should be guided by the objectives and research questions set for the study when choosing the analysed contents (Elo and Kyngäs, 2008). As Research Objective 2 of this dissertation guides the discovery of whether and to what extent certain disclosures and information

required by the GRI reporting standards appear in the sampling units, analysing latent meanings in the text was considered unnecessary for this part of the dissertation.

Finally, Elo and Kyngäs (2008) advise content analysts to make sense of the data, which entails reading it. Here, understanding the information appearing in the airlines' emissions disclosures required reading not only the reports per se but also a thorough reading of the GRI Standards (GRI, 2018b, 2018c, 2018a) and seeking further guidance from its associated guides (WRI and WBCSD, 2011; WBCSD and WRI, 2012, 2015; CDP and GRI, 2017; IATA, 2020a).

4.4.2.2 Organising phase

After making sense of the data, following Elo and Kyngäs (2008), the organisation phase begins by deciding whether content analysis adopts an inductive or deductive approach to coding. The former involves openly exploring the data to group it into categories by identifying patterns, while the latter entails systematically distilling data based on pre-determined criteria (Macnamara, 2018). As the present study seeks to identify and quantify the presence or absence of specific information (i.e., the disclosure itself and information per disclosure criteria) in the sampling units that can address Research Objective 2, the deductive approach was deemed appropriate (Kondracki, Wellman and Amundson, 2002). This approach necessitated a priori identification of categories according to which the data can be coded. Accordingly, the categories were informed by previous research in the field (see Hsieh and Shannon, 2005; Elo and Kyngäs, 2008; Macnamara, 2018), particularly from similar studies conducted by Talbot and Boiral (2018) and Talbot and Barbat (2020), as well as the GRI Standards (2018a, 2018c, 2018b).

The next step was to develop a categorisation matrix and code the data according to the identified categories (Elo and Kyngäs, 2008). In this dissertation, the process of developing the matrix followed prior research (Talbot and Boiral, 2013; Chelli, Durocher and Fortin, 2018; Macellari *et al.*, 2021) by constructing a spreadsheet using Excel, which followed the structure of the GRI Standards for each analysed disclosure and their associated disclosure requirements. In addition to including all GRI's Emissions Disclosures (GRI, 2018c) in the spreadsheet, several General Disclosures (GRI, 2018b) were added. As a result, the spreadsheet formed a checklist comprising four general disclosures, seven emissions disclosures, and their associated disclosure requirements, totalling 43 requirement components overall. Tables 5-6 on the following pages present the disclosures and their disclosure requirement components, along with notes taken

into account when cross-checking the presence or absence of this information. All checklist items were included in the categorisation matrix by columns, under which each airline's disclosure presence and compliance with the disclosure requirements were coded.

Table 5 GRI requirements for selected General disclosures and rationale for their cross-checking.

Disclosurfe	**Components of the disclosure (checklist items)**	**Notes**
102-54 Claims of reporting in accordance with the GRI Standards	a. The claim made by the organisation, if it has prepared a report in accordance with the GRI Standards, either: i. 'This report has been prepared in accordance with the GRI Standards: Core option'; ii. 'This report has been prepared in accordance with the GRI Standards: Comprehensive option'.	This disclosure was verified for GRI adherence.
102-55 - GRI content index	a. The GRI content index, which specifies each of the GRI Standards used and lists all disclosures included in the report. b. For each disclosure, the content index shall include: i. the number of the disclosure (for disclosures covered by the GRI Standards); ii. the page number(s) or URL(s) where the information can be found, either within the report or in other published materials; iii. if applicable, and where permitted, the reason(s) for omission when a required disclosure cannot be made	This disclosure was cross-checked to ensure that all disclosures could be found
102-47 List of material topics	a. A list of the material topics identified in the process for defining report content	This disclosure was cross-checked to see if 'emissions' (or similar) was identified as the company's material topic
102-56 External assurance	a. A description of the organisation's policy and current practice with regard to seeking external assurance for the report b. If the report has been externally assured: i. A reference to the external assurance report, statements, or opinions. If not included in the assurance report accompanying the sustainability report, a description of what has and what has not been assured and on what basis, including the assurance standards used, the level of assurance obtained, and any limitations of the assurance process; ii. The relationship between the organisation and the assurance provider; iii. Whether and how the highest governance body or senior executives are involved in seeking external assurance for the organisation's sustainability report	This disclosure was cross-checked to see if the emissions disclosures were externally assured and to discuss the quality of such assurance.

Adapted from GRI (2018b)

Table 6 GRI requirements for GRI Emissions disclosures.

Disclosurfe	Components of the disclosure	Notes
305-1 Direct (Scope 1) GHG emissions	a. Gross direct (Scope 1) GHG emissions9 in metric tons of CO2 equivalent b. Gases included in the calculation; whether CO2, CH4, N2O, HFCs, PFCs, SF6, NF3, or all c. Biogenic CO2 emissions in metric tons of CO2 equivalent d. Base year for the calculation, if applicable, including: i. the rationale for choosing it; ii. emissions in the base year; iii. the context for any significant changes in emissions that triggered recalculations of base year emissions. e. Source of the emission factors and the global warming potential (GWP)13 rates used, or a reference to the GWP source f. Consolidation approach for emissions; whether equity share, financial control, or operational control g. Standards, methodologies, assumptions, and/or calculation tools used.	(d) recalculations come into question if the reported Scope 1 emissions for the base year differ from the previously reported Scope 1 emissions (those published in the previous report). To check the compliance, the previous year's reports must also be cross-checked.
305-2 Energy indirect (Scope 2) GHG	a. Gross location-based energy indirect (Scope 2) GHG emissions in metric tons of CO2 equivalent b. If applicable, gross market-based energy indirect (Scope 2) GHG emissions in metric tons of CO2 equivalent c. If available, the gases included in the calculation; whether CO2, CH4, N2O, HFCs, PFCs, SF6, NF3, or all d. Base year for the calculation, if applicable, including: i. the rationale for choosing it; ii. emissions in the base year; iii. the context for any significant changes in emissions that triggered recalculations of base year emissions. e. Source of the emission factors and the global warming potential (GWP) rates used, or a reference to the GWP source f. Consolidation approach for emissions; whether equity share, financial control, or operational control. g. Standards, methodologies, assumptions, and/or calculation tools used.	(b) and (d) are not cross-checked because they are requested to be disclosed "if applicable". Whether they apply to the airlines would difficult to verify. (c) is not cross-checked because it is requested to be disclosed "if available". Whether this applies to the airline would difficult to verify.
305-3 Other indirect (Scope 3) GHG emissions	a. Gross other indirect (Scope 3) GHG emissions14 in metric tons of CO2 equivalent b. If available, the gases included in the calculation; whether CO2, CH4, N2O, HFCs, PFCs, SF6, NF3, or all. c. Biogenic CO2 emissions in metric tons of CO2 equivalent. d. Other indirect (Scope 3) GHG emissions categories and activities included in the calculation. e. Base year for the calculation, if applicable, including: i. the rationale for choosing it; ii. ii. emissions in the base year; iii. iii. the context for any significant changes in emissions that triggered recalculations of base year emissions. f. Source of the emission factors and the global warming potential (GWP) rates used, or a reference to the GWP source g. Standards, methodologies, assumptions, and/or calculation tools used	(b) is not cross-checked because it is requested to be disclosed "if available". Whether this applies to the airline would difficult to verify. (e) is not cross-checked because it is requested to be disclosed "if applicable". Whether this applies to the airline would difficult to verify.

Table 6 GRI requirements for GRI Emissions disclosures (continues)

Disclosurfe	Components of the disclosure		Notes
305-4 GHG emissions intensity	a.	GHG emissions intensity ratio for the organisation	
	b.	Organisation-specific metric (the denominator) chosen to calculate the ratio.	
	c.	Types of GHG emissions included in the intensity ratio; whether direct (Scope 1), energy indirect (Scope 2), and/or other indirect (Scope 3).	
	d.	Gases included in the calculation; whether CO2, CH4, N2O, HFCs, PFCs, SF6, NF3, or all	
305-2 Energy indirect (Scope 2) GHG	a.	GHG emissions reduced as a direct result of reduction initiatives, in metric tons of CO2 equivalent.	
	b.	Gases included in the calculation; whether CO2, CH4, N2O, HFCs, PFCs, SF6, NF3, or all.	
	c.	Base year or baseline, including the rationale for choosing it	
	d.	Scopes in which reductions took place; whether direct (Scope 1), energy indirect (Scope 2), and/or other indirect (Scope 3).	
	e.	Standards, methodologies, assumptions, and/or calculation tools used	
305-6 Emissions of ozone-depleting substances (ODS) Reporting	a.	Production, imports, and exports of ODS16 in metric tons of CFC-11 (trichlorofluoromethane) equivalent	
	b.	Substances included in the calculation	
	c.	Source of the emission factors used	
	d.	Standards, methodologies, assumptions, and/or calculation tools used	
305-7 Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	a.	Significant air emissions, in kilograms or multiples, for each of the following: i. NOx ii. SOx iii. Persistent organic pollutants (POP) iv. Volatile organic compounds (VOC) v. Hazardous air pollutants (HAP) vi. Particulate matter (PM) vii. Other standard categories of air emissions identified in relevant regulationsSubstances included in the calculation.	(a) According to IATA, NOx is the only significant emission under this metric. Hence, as long as NOx is reported in kilograms or multiplies, the reported information complies with it.
	b.	Source of the emission factors used	
	c.	Standards, methodologies, assumptions, and/or calculation tools used	

Adapted from GRI (2018c)

The complete coding frame developed for this research comprised several hierarchical coding stages, as illustrated in Figure 8. The development of the coding frame and its operationalisation are described in detail further below.

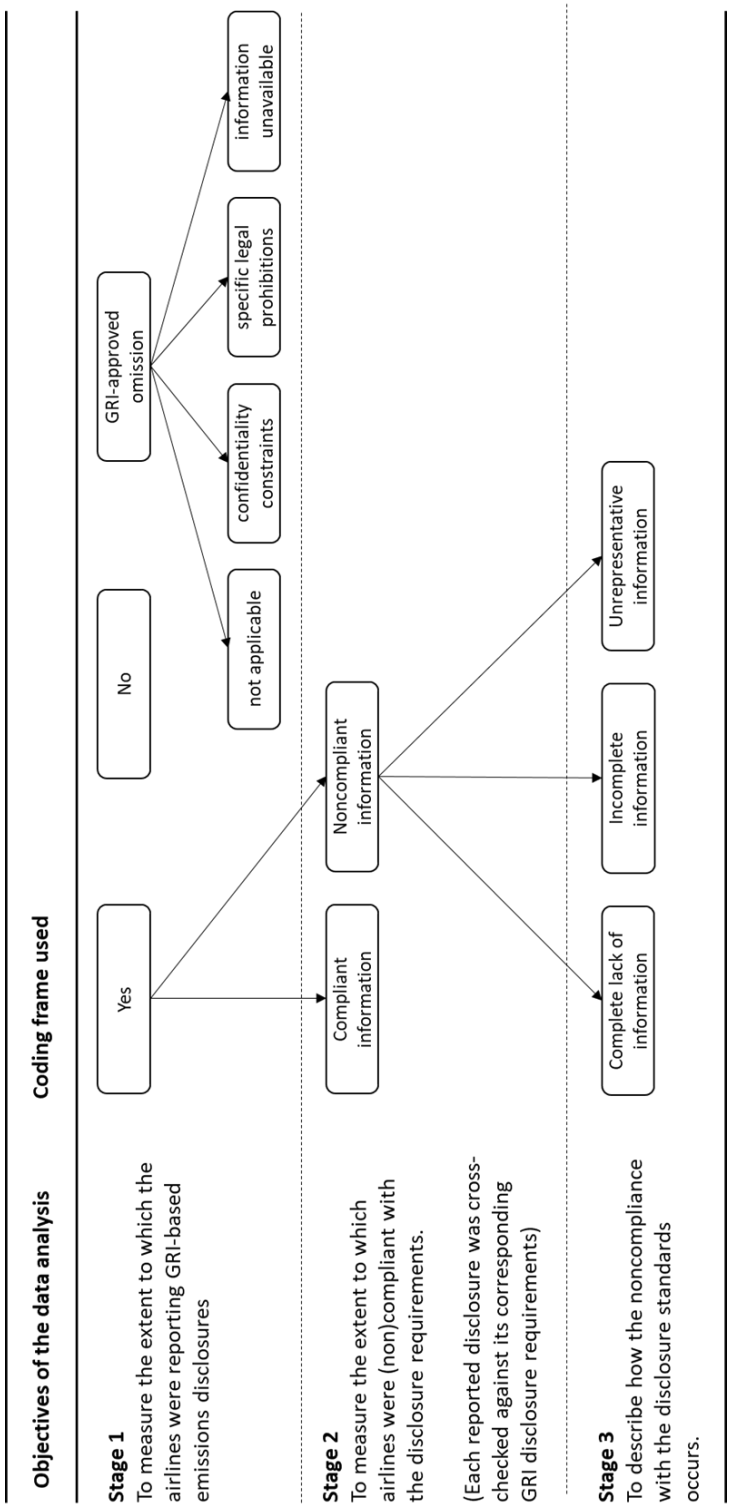

Figure 8 Coding frame used in the content analysis

Initially, each report was cross-checked for the presence or absence of the disclosures (Stage 1). The presence of the disclosures that each airline company claimed to have reported was verified using the reports' GRI content index pages. The GRI content index is a navigation tool, usually constructed as a table at the end of the report, identifying the disclosures used, their location, and possible reasons for not disclosing information on material topics (GRI, 2018b; IATA, 2020a). Any report claiming compliance with the GRI Standards must include the GRI content index (GRI, 2018a). The presence of each disclosure of interest was coded using categories 'yes' (the given disclosure was present in the report), 'no' (the given disclosure was absent in the report), and 'omission' (the report presented a GRI-approved reason for omitting the given disclosure). The reason for the omission was coded when reported. More specifically, the analysis matrix was elaborated (see Schilling, 2006; Macellari *et al.*, 2021) with codes based on the GRI-approved reasons for omission: 'not applicable', 'confidentiality constraints', ''specific legal prohibitions', and 'information unavailable' (see Appendix 11 for full description).

Next, the analysis matrix was further elaborated for the disclosures the reports claimed to have included. This was to investigate the potential use of impression management, conceptualised as reporting bias, executed through concealment strategies by strategically omitting or obfuscating information while creating the appearance of full disclosure, as described in this dissertation's conceptual framework of impression management (see section. 3.3.2). At this stage (Stage 2), the information corresponding to each GRI-specified disclosure requirement served as a recording unit. The information was coded as 'compliant information' or 'non-compliant information' depending on whether its contents adhered to the given disclosure requirements. Finally (Stage 3), in occurrences where the disclosures were deemed non-compliant, the types of non-compliance were coded in one of the following groups that were adapted from Talbot and Boiral's (2018) similar study that analysed compliance of GRI-based reporting in the energy sector's GHG reporting:

1. Complete lack of information: The company does not provide any information under the given disclosure requirements
2. Incomplete information: The company offers partial information as per the given disclosure requirements
3. Unrepresentative information: There is confusion about how certain aspects of the disclosure requirements are reported, e.g. the company's reported content does not correspond to the information in a particular disclosure requirement.

After coding across the dataset, descriptive statistics were employed to address the bipartite research objective, i.e., to assess the scope of the airlines' GRI-based emissions disclosures and the degree to which these disclosures comply with the GRI Standards. This process involved tallying the codes documented in the analysis matrix and computing their frequencies and means within Microsoft Excel. Specifically, disclosure rates for each examined GRI-based disclosure were calculated by dividing the number of reports where the given disclosures were present by the sample size (N=19). Subsequently, to assess the industry's compliance with GRI's disclosure standards, the compliance of each airline's reported disclosure was first determined separately by calculating the percentage of fulfilled disclosure requirements. For instance, disclosure 305-4 (GHG emissions intensity) comprises four disclosure requirements set by the GRI Standards. If a report fulfilled three of its four requirements, the disclosure was considered 75% compliant with the GRI Standards for the given disclosure. Then, the average compliance rate was calculated across the entire sample of airlines that had reported the given disclosure. Finally, to characterise non-compliant information, frequencies of the codes representing the categories of non-compliance were computed for each disclosure.

The frequencies of each reported disclosure, their associated compliance levels with the GRI requirements and identified categories of non-compliance are described as part of the analysis of results (Chapter 5; section 5.2), with examples and extracts provided to demonstrate links between the data and results.

4.4.3 Trustworthiness of the data

In content analysis, the validity and reliability of the methods must be tested and maintained to demonstrate the trustworthiness of the results (Kondracki, Wellman and Amundson, 2002). In short, "validity is the extent to which a measuring procedure represents the intended, and only the intended concept [and r]eliability is the extent to which a measuring procedure yields the same results on repeated trials" (Neuendorf, 2002, p. 212). Rather than addressing all subtleties and techniques for assessing validity and reliability in content analysis (cf. Neuendorf, 2002; Krippendorff, 2004), the present research built its trustworthiness by focusing on the validity and reliability considerations recommended by Kondracki, Wellman and Amundson (2002).

4.4.3.1 Validity

Regarding validity, Kondracki, Wellman and Amundson (2002) hold it as a concern in content analysis in two major ways: when selecting the sample and when selecting the

communications (or contents) to be studied. To begin with sampling, Krippendorff (2004) specifies that it becomes an issue when a text sample differs from the population of phenomena of interest. He elaborates that such issues do not arise when analysts can answer their research questions by examining all texts of a particular population, also known as a census. Accordingly, it can be firmly stated that the present research does not contain issues with sampling validity as it contains a complete set of the airline industry's GRI-based emissions reporting from FY19 obtained through the sampling process outlined in section 4.4.1.

The issues concerning the selection of communications can be related to content validity. Drawing on Carmines and Zeller (1979), Neuendorf (2002) defines content validity as the extent to which the measure reflects the full domain of the concept being measured. Essentially, the concepts measured in the present research are the airline's GRI-based emissions disclosures and the extent to which the reported disclosures comply with the GRI Standards. Therefore, to ensure content validity in analysing airline companies' GRI-based reports for their GRI emissions disclosures, the performed analysis comprehensively covered those parts of the reports where the emissions disclosures were reported. In order to do so, the locations of the disclosures that the airlines claimed to have reported were always checked from the place indicated in the reports' GRI index. The report was read in full if the given disclosure was not found in the place indicated in the index. When analysing the disclosures' content and subsequently coding whether or not the disclosures accurately complied with criteria specified by the GRI, the coding process necessitated a thorough understanding of the disclosure criteria set for each disclosure analysed. To guide this process, the coding frame was supplemented with detailed notes and instructions to minimise subjectivity in the coding process (Macnamara, 2018). These instructions (enclosed in Appendix 11) were based on the GRI's (2018c, 2018b) disclosure standards with which the airlines' reports claimed compliance. To fully understand the standards and their associated disclosure criteria, guidance for the instructions were sought from the GHG Protocol Corporate Standards (WRI and WBCSD, 2011; WBCSD and WRI, 2012, 2015) on which many GRI emissions disclosure standards are based, IATA's (IATA, 2020a) Sustainability Reporting Handbook, which contains specific guidance for the airline industry's GRI reporting, and other documentation that helped to interpret the requirements (CDP and GRI, 2017).

Besides content validity, construct validity is another type of empirical validity associated with the degree to which the evidence can support the intermediate stages of the research process and its results (Krippendorff, 2004). The issue of construct validity

revolves around the question of how well the variables used can address the research questions or objectives (Kondracki, Wellman and Amundson, 2002). In the present research, the first part of Research Objective 2, i.e. to assess the scope of the airlines' GRI-based emissions disclosures, was addressed straightforwardly by measuring the disclosure presence using the categorical variable consisting of the categories 'yes', 'no', and '[GRI-approved] omission'). Given the predefined systematic categorisation of content by the GRI Standards in this regard, there was no need to revise this category system, nor were there assumed to be any validity problems associated with measuring the disclosure presence either (see Rüger and Maertens, 2023). However, measuring disclosure compliance with the dichotomous variable with categories 'compliant information' and 'non-compliant information') was deemed insufficient in fully addressing the second part of the research objective, i.e. to assess the degree to which these disclosures comply with the GRI Standards. More specifically, had the coding been limited to that approach, the results would have been confined to measuring the degree of compliance without any assessment or explanation of non-compliance. Considering the theoretical framework of this dissertation, the analysis was also extended to uncover potential impression management, conceptualised as reporting bias, implemented through concealment strategies aimed at limiting disclosure. Accordingly, the coding scheme was elaborated with the categorical variable to measure the nature of non-compliance, using categories of 'complete lack of information', incomplete information, and 'unprecedented information', deriving from a similar existing study (Talbot and Boiral, 2018). The strength of such a directed approach to coding, which employs categories determined in prior research, can be considered not only supporting the prior categorisation (Hsieh and Shannon, 2005) but also improving the construct validity for the present research (Kondracki, Wellman and Amundson, 2002). Subsequently, the coding frame was supplemented with instructions for interpreting and coding the disclosure of non-compliant information (see Appendix 11). The role of the coding frame with instructions became particularly important as two coders participated in the coding process.

4.4.3.2 Reliability

Even when content analysis is conducted using a priori design, i.e. having predefined variables, their measurement, and coding rules, before the observation begins (Neuendorf, 2002), and even if it employs deduction and detailed coding instructions, the literature recommends using multiple coders to minimise the influence of subjectivity in coding (Macnamara, 2018). Using multiple coders simultaneously allows the

assessment of intercoder reliability (ICR). In short, “ICR is a numerical measure of the agreement between different coders regarding how the same data should be coded” (O’Connor and Joffe, 2020, p.2). While associated literature holds dozens of measures or indices for calculating ICR (Macnamara, 2018), the approach adopted in this project follows reporting the percentage of agreement between coders, which is argued to be the most common approach (O’Connor and Joffe, 2020). Specifically, the method applied the following formula suggested by Miles and Huberman (1994):

Reliability = number of agreements/number of agreements + disagreements

Some practitioners may advise against this method because of its unanticipated complexities (O’Connor and Joffe, 2020) and favour less crude methods like Cohen’s Kappa (Roberts, Dowell and Nie, 2019). Complexities may arise, for example, when there are more than two coders, when multiple codes can be applied to the same data units (McHugh, 2012), and when the number of categories is large (Feng, 2015). The coding procedure in this research did not involve such complexities as only two coders were involved in the process, and each recording unit could be assigned only one category from the coding frame, with the number of categories limited to two or three states on each variable. To conclude, the percentage agreement can reflect the reliability of the coding frame if its protocol involves a simple coding task (Feng, 2015).

The question of how much data should be coded by multiple coders to determine ICR is also not straightforward. According to Neuendorf (2002), at least two coders should analyse at least 10% of the data. O’Connor and Joffe (2020), in turn, recognise that a typical size of data used for ICR is between 10% and 25%, depending on the size of the dataset. They go on to note that while some studies may apply multiple coding even to the entire dataset, resource constraints are often the reason for calculating ICR only on a subset of data. This was also the case in this research, in which a subset of the data was coded by two coders, which is the minimum required for establishing ICR in quantitative content analysis studies (Kondracki, Wellman and Amundson, 2002). In this research, the author of this dissertation coded the entire dataset of 19 airlines, and the subset comprising four airlines was coded independently by the author and his PhD supervisor. The data that underwent the ICR included all codes recorded by the two coders from the Stage 2 analysis, where the information in each reported disclosure was assessed against GRI requirements and coded as either compliant or non-compliant, as well as from the Stage 3 analysis, where instances of non-compliance were categorised into three specific groups.

Although ICR checks are sometimes performed retrospectively, the present research followed Kondracki, Wellman and Amundson (2002), according to whom they should be done as part of pilot testing. Applying the ICR to this phase allowed the author and his PhD supervisor to discuss uncertainties and conflicting interpretations, based on which improvements were made to the final coding frame and its associated coding instructions. For instance, following the conducted ICR check, a decision was made not to evaluate some emissions disclosure requirement components' compliance against the GRI-specified criteria that contained wordings such as "if available" or "if applicable". This choice stemmed from the difficulty of verifying the availability or applicability of the requested information for each airline using publicly available data. No further improvements were made to the coding frame and its instructions after the piloting, as an 83% agreement was reached, passing the threshold of 75%, which can be considered to demonstrate an adequate level of agreement (Saldaña, 2009). After the piloting, the author of this dissertation independently coded across the remaining dataset.

4.5. Phase 2: Qualitative phase

Phase 2 examines the airline's climate disclosures more qualitatively to shed light on how the communication surrounding the emissions disclosures is constructed to justify the industry's adverse climate impact. Based on the theories stemming from the sociological perspective, as covered in the theoretical framework, airlines without positive climate-change news may protect their corporate legitimacy by employing defensive impression management, which is closely associated with the theory and techniques of neutralisation (sections 3.3.3-3.3.4). Consequently, Research Objective 3 was developed **to identify neutralisation techniques used in emissions disclosures to justify airlines' negative climate impact.** Examining their use is best achieved qualitatively (Talbot and Boiral, 2018). The qualitative approach is appropriate because the data under analysis and the subsequently generated data are non-numerical (Saunders, Lewis and Thornhill, 2009). The qualitative approach is also appropriate because the objective seeks to provide a contextual description and interpretation of a social phenomenon (Vaismoradi and Snelgrove, 2019), specifically about neutralisation techniques in emissions reporting in the given industry.

The data *corpus*[13] in Phase 2 consists of the same 19 sustainability reports used in Phase 1. In Phase 2, the reports were uploaded as PDF files to NVivo, a qualitative data analysis software that facilitates storing documentary sources and coding qualitative

[13] "Data corpus refers to all data collected for a particular research project" (Braun and Clarke, 2006, p. 79)

data (Bazeley and Jackson, 2013). The analysis methods included Braun and Clarke's (2006, 2012) six-phase approach to thematic analysis to identify neutralisation techniques in the communication surrounding the airlines' emissions disclosures. This was combined with critical discourse analytical methods derived from Halliday's systemic functional grammar (Halliday and Matthiessen, 2004) to examine how lexico-grammatical devices are used in constructing neutralisation techniques, specifically in positioning the airlines in relation to climate impact.

It should be noted that the author of this dissertation performed a preliminary qualitative analysis of Scandinavian Airline's (SAS) climate-related disclosures (Johansson, 2021). The primary purpose of this preliminary study was to pilot the aforementioned research methods before their possible broader implementation in the present dissertation. It is also worth mentioning that the findings of the preliminary study significantly influenced the direction of the present dissertation. Specifically, the relevance of neutralisation techniques emerged during this analysis, guiding the research to explore the neutralisation theory and techniques in the literature to explain the observed rhetoric. After the subsequent theoretical review, neutralisation techniques were incorporated into this dissertation's theoretical framework to explore how airlines may use them as impression management strategies to justify their adverse climate impact. This approach to theory building is sometimes referred to as abduction, which is characterised by observing a 'surprise' (Ketokivi and Mantere, 2010; Vila-Henninger et al., 2024) and moving back and forth between theory and empirical data (Wodak, 2001). As a result of observing neutralisation techniques first in the preliminary study and then in the literature, it was assumed that other airlines would also employ various neutralisation techniques to justify their negative disclosure.

4.5.1 Thematic analysis

To explore the above assumption, this dissertation employed thematic analysis, recognised as "possibly the most widely used qualitative method of data analysis" (Braun and Clarke, 2013, p. 175), which encompasses a range of approaches (Braun and Clarke, 2006). The approach selected for this research follows Braun and Clarke's (2006) six-phase approach, which is a step-by-step "method for systematically identifying, organizing, and offering insight into patterns of meanings (themes) across a data set" (Braun and Clarke, 2006, p. 57). Their approach is also considered one of the most widely cited approaches to qualitative analysis in general (Wilson *et al.*, 2021). This approach is summarised in Table 7, followed by a detailed description of how it was applied in this research.

Table 7 Six phases of thematic analysis.

Phase	Description of the process
1. Familiarising yourself with your data:	Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.
2. Generating initial codes:	Coding interesting features of the data in a systematic fashion across the entire data set, collecting data relevant to each code.
3. Searching for themes:	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes:	Checking if the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis.
5. Defining and naming themes:	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.
6. Producing the report	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.

Adapted from Braun and Clarke (2006, p. 87)

Following Braun and Clarke's stepwise approach, the process commenced with familiarising oneself with the data. This phase usually involves transcribing if the researcher is using verbal data. In this research, transcribing was unnecessary since the data was already in PDF format and uploaded to NVivo. Reading and analysing all parts of the reports was not necessary either. The *data set,* referring to all data from the corpus (Braun and Clarke, 2012), was purposively selected based on specific criteria. Specifically, the purposive selection process means the data set was chosen with the research question in mind (Saunders, Lewis and Thornhill, 2009). Accordingly, considering Research Question 2, the data set under scrutiny comprised parts of the reports where the emissions disclosures were located.

Additionally, in cases where the reports identified emissions (or similar issues[14]) as material topics, the sections detailing the management approach to such issues were

[14] The list of topics covered by the GRI Standards is not exhaustive. In some cases, an organization may identify a material topic that does not match exactly with the available topic-specific Standards. In this case, if the material topic is similar to one of the available topic Standards, or can be considered to relate to it, the organization is expected to use that Standard for reporting on the topic in question (GRI, 2018a, p. 18).

included in the dataset. Under the GRI Standards, the Management Approach refers to a “narrative description about how an organization manages its material topics and their related impacts” (GRI, 2018a, p 27), which must be reported for each material topic. In other words, if an airline identifies emissions as a material topic, it must report on its management approach to it. In addition to topic-specific disclosures, management approach disclosures must also be included in the GRI content index, which was used to locate these texts in the reports.

Moreover, a decision was made to analyse the CEO’s (and/or other management representative’s) statements located in the initial section of sustainability reports because they are considered the most prominent section, encapsulating the other sections of the entire report (Rajandran and Taib, 2014). The data set was then read while annotations were made on any parts of the data that were considered to contain instances of neutralisation techniques, such as justifications, excuses, or other rationalisations about the airlines’ negative emissions performance.

In the subsequent phase (phase 2), the data underwent coding to identify features that could be potentially pertinent to Research Question 2. According to Braun and Clarke (2006, 2012), themes or patterns within data can be identified and coded in either a ‘deductive’ (top-down or theory-driven) or an ‘inductive’ (bottom-up) manner. Where the inductive approach is driven by what is in the data without the researcher’s analytic preconception, the deductive approach entails the researcher bringing a series of concepts, ideas, or topics that they use to code and interpret the data (Braun and Clarke, 2006). As described earlier, the preliminary study on SAS Airlines’s report (Johansson, 2021) guided this research to read about neutralisation theory and review neutralisation techniques identified in prior literature. Consequently, the coding across the data set in this dissertation leaned towards the deductive approach. Following this approach, the themes represented various neutralisation techniques identified in prior studies (section 3.3.4), and the codes represented specific manifestations of these broader techniques.

Although neutralisation techniques have been described as socially acceptable arguments (Boiral, 2016), their manifestation may not always be explicit in the text. Instead, their employment often involves conveying implicit messages that shape the content of the explicit text, aiming to rationalise or legitimise deviating behaviour or bad performance, such as the airlines’ adverse climate impact. Therefore, the coding process frequently necessitated the interpretation of the meanings beneath the surface of the data, which Braun and Clarke (2006) refer to as latent-level coding rather than merely

describing the content, known as semantic coding. Following Braun and Clarke's (2012) advice, numerous codes were assigned across the data set, with a brief description given to each code. Many of these codes – representing different manifestations of neutralisation techniques identified in the text – were immediately linked to specific neutralisation techniques derived from existing literature. As a result, these codes were grouped into themes representing broader neutralisation techniques during the initial coding process. Braun and Clarke (2006, 2012) link this process with phase 3.

Braun and Clarke (2006, 2012) describe phase 3 as searching for themes. During this phase, the initial codes were reviewed and grouped with similar features into themes, representing specific broader neutralisation techniques. In NVivo, this process was carried out by creating static sets encapsulating the assigned codes. Codes that did not inherently represent any neutralisation techniques at first glance were encapsulated into a miscellaneous set. It is worth mentioning that some portions of text were assigned with more than one code, which is acceptable in Braun and Clarke's (2012) approach to thematic analysis. This was also expected, as prior literature has identified that neutralisation techniques can overlap (Kaptein and van Helvoort, 2019) and be used simultaneously (Chassé *et al.*, 2017). On the completion of this phase, 234 data extracts – ranging from a few words to short paragraphs – spanning 234 pages across the 19 reviewed reports were coded using a total of 28 codes, of which 20 were matched with themes representing broader neutralisation techniques, and the rest housed in the miscellaneous theme. The number of codes used and data extracts coded per report is detailed in Appendix 8. Figure 9 (see p. 122, in turn, visualises how the initial codes (rectangles) were grouped into themes (ovals).

Phase 4 comprised reviewing the themes (i.e. neutralisation techniques) in relation to the coded data, which Braun and Clarke (2012) refer to as a quality-checking process. Specifically, the coded data extracts were reread to determine whether they accurately reflected the descriptions given to their respective codes as well as their broader neutralisation techniques. The goal was also to check that each code ideally appeared in more than one data item. During this process, some data extracts were recoded to align better with descriptions of other codes, while some other extracts were uncoded altogether if they did not clearly reflect the descriptions given to any code. This process resulted in some codes becoming entirely redundant. Two themes (Prioritisation of economic survival and Excuses and future commitments) were also entirely removed because they housed only one code and were considered to have too few coded data extracts.

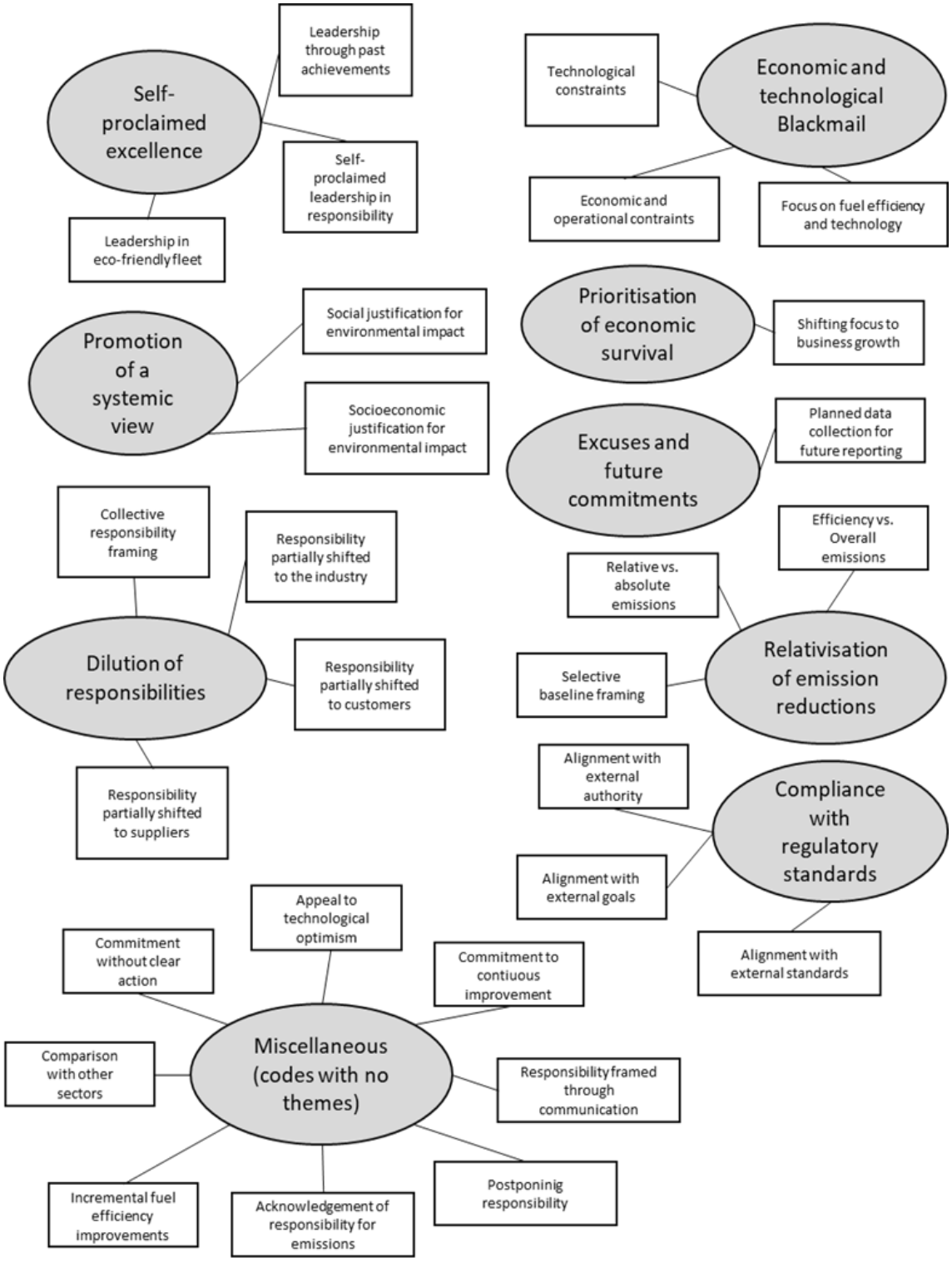

Figure 9 Initial thematic map showing initial codes and their associated neutralisation techniques

After carefully reviewing the remaining codes housed in the miscellaneous theme and rereading their respective data extracts, certain codes were deemed to share similarities in the way they manifested another broader type of neutralisation technique called 'Claim of net neutral impact', as similarly described in previous literature (Boiral, 2016). These codes were consequently grouped into a new theme, resulting in the removal of the miscellaneous theme. Throughout this process, all coded data extracts under each theme were considered to represent specific neutralisation techniques used to justify the airlines' adverse climate impact, thus contributing to Research Question 2. The outcome of this refinement process by the end of phase 4 is illustrated in the final thematic map (Figure 10, p. 124), consisting of 7 broader neutralisation techniques and 18 codes representing certain ways these neutralisation techniques manifested in the reviewed reports.

The last two phases in Braun and Clarke's (2006, 2012) approach to thematic analysis involve defining and naming the themes and reporting the themes logically and compellingly. As the themes presented in this dissertation represent neutralisation techniques identified across this study's data set based on deductive coding, where the codes represent certain manifestations of broader neutralisation techniques described and defined in the existing literature, using the same names for these neutralisation techniques was deemed appropriate. Brief descriptions of the themes (i.e., identified neutralisation techniques) and their associated codes (i.e., manifestations of the neutralisation techniques), as used in NVivo, are provided in Table 8 (p. 125-126). Identified neutralisation techniques are described and discussed in more detail in Chapter 5 (Section 5.3).

Braun and Clarke (2012) note that the line between the last two phases is often blurry, as writing and analysis are frequently interwoven in qualitative analysis. Nevertheless, in these last phases, vivid and compelling extracts are selected from the data set on which the final analysis is conducted. Following their approach, two types of analysis are presented in combination: 1) a summative analysis that describes the broader data set in relation to each theme, and 2) a more interpretative analysis, in which the selected extracts are examined in greater detail for their latent meanings. In this dissertation, the latter analysis was combined with critical discourse analytical methods to examine further how lexico-grammatical devices have been used to position airlines and their actions in the text to persuade organisational audiences of the legitimacy of their adverse climate impact.

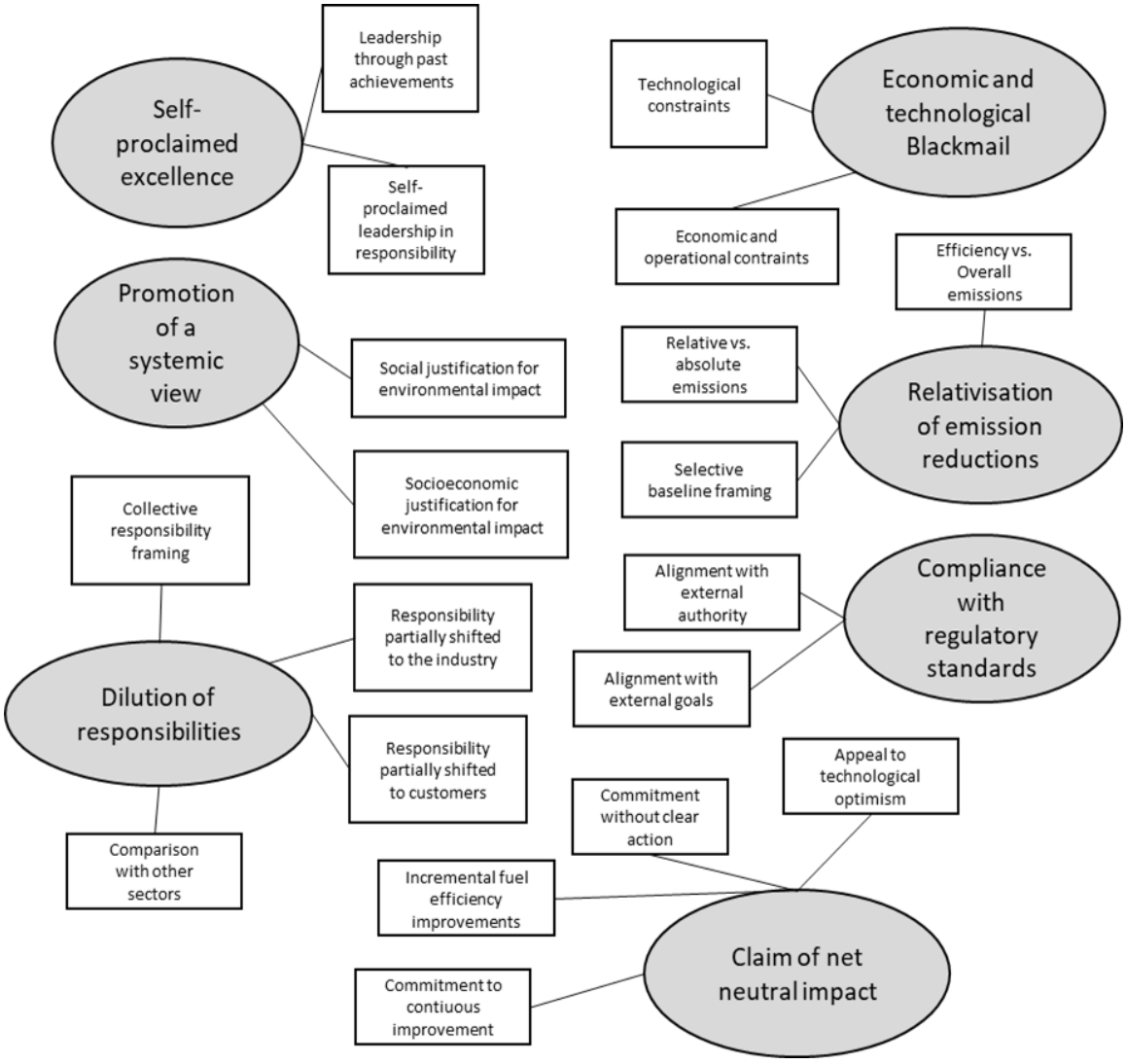

Figure 10 Final thematic map showing the final eight neutralisation techniques and their associated codes

Table 8 Neutralisation techniques and their associated codes with descriptions

Theme (Neutralisation technique)	Description of the neutralisation technique	Codes (manifestations of the neutralisation techniques)
Self-proclaimed excellence	The airline distances itself from the rest by highlighting its excellence and leadership.	• **Self-proclaimed leadership in responsibility** refers to an airline positioning itself as a leader in sustainability or responsibility, often without external validation or concrete evidence of its achievements. • **Leadership in eco-friendly fleet** refers to the act of an airline positioning itself as a leader by introducing high-efficiency, low-emission aircraft to reduce its environmental impact.
Relativisation of emission reductions	The airline uses 'selectivity' and 'performance comparisons' as tactics to show its overall negative performance favourably.	• **Efficiency vs overall emissions** reflects reporting where efficiency improvements have led to relative reductions in emissions, while total emissions may have increased. • **Relative vs absolute emissions** reflects reporting where emissions reductions are framed in relative terms (e.g., per unit of activity) rather than absolute terms, and overall emissions could still (have) rise(n) with expanded flight operations. • **Selective baseline framing** reflects a situation where an airline compares emissions reductions to a distant or favourable baseline year, potentially misleading stakeholders by highlighting long-term reductions while downplaying recent increases in emissions and the overall environmental impact.
Claim of net neutral impact	The airline asserts that the environmental harm is or will be corrected or balanced.	• **Incremental fuel efficiency improvements** reflects the airline's focus on smaller operational changes to achieve fuel efficiency gains. While these improvements reduce fuel consumption and emissions, they may be seen as incremental steps rather than comprehensive actions addressing the broader environmental impact. • **Commitment to continuous improvement** reflects the airline's ongoing efforts to reduce environmental impact through emissions monitoring, new technologies, and improved procedures, but this focus on incremental improvements may downplay the need for immediate and transformative changes. • **Commitment without clear action** refers to the airline asserting environmental commitments without specifying concrete actions, timelines, or measurable outcomes. • **Appeal to technological optimism** refers to framing technological advancements as the primary or sufficient solution to environmental challenges, implying that ongoing innovation will resolve issues without requiring significant systemic changes or immediate action.

Table 8 Neutralisation techniques and their associated codes with descriptions (continues)

Theme (Neutralisation technique)	Description of the neutralisation technique	Codes (manifestations of the neutralisation techniques)
Compliance with regulatory standards	The airline asserts its integrity by claiming to align its actions with external authorities or goals, thereby implicitly downplaying significant adverse impacts.	• **Alignment with external authority** refers to statements that aim to align the airline's actions with external standards or regulations (e.g., from governments or international bodies) to demonstrate compliance, enhance credibility, and deflect criticism of its environmental footprint. • **Alignment with external goals** refers to statements that justify an airline's performance by framing it in line with externally established objectives, helping to deflect criticism of its environmental footprint.
Economic and technological blackmail	The airline emphasises economic and/or technological constraints associated with environmental commitments.	• **Economic and operational constraints** refers to the airline highlighting financial or operational challenges to justify its current emissions levels or delays in achieving reduction targets. • **Technological constraints** refers to statements where technological limitations are framed as key factors limiting emissions reductions, with the airline emphasising the need for further advancements while positioning itself as actively engaged in addressing the issue.
Dilution of responsibility	The rationalisation of negative climate impacts focuses on an outgroup by assigning responsibility to it.	• **Collective responsibility framing** refers to the airline positioning itself as one participant in a broader global effort to address climate change, thereby shifting the focus away from its actions and reducing the perceived weight of its responsibility. • **Comparison with other sectors** refers to the airline highlighting the larger environmental footprints of other sectors or industries to downplay its contribution to climate change. • **Responsibility partially shifted to the industry** refers to attributing emissions responsibility to the industry, thus diluting accountability by framing the issue as a collective, industry-wide challenge**.** • **Responsibility partially shifted to customers** refers mainly to how the airline frames its carbon offsetting schemes in ways that shift part of the responsibility for emissions mitigation onto passengers.
Promotion of a systemic view	The negative climate impact is rationalised by the importance of the airline's positive contributions to society.	• **Social justification for environmental impact** refers to the airline framing environmental harm as acceptable because of the social benefits aviation provides, such as enhancing the quality of life and fostering cultural exchange. • **Socioeconomic justification for environmental** impact refers to the airline emphasising the socio-economic benefits of aviation, such as connectivity and growth, to justify its environmental impact**.**

4.5.2 Combining thematic analysis with critical discourse analytical methods

Despite the popularity of thematic analysis in qualitative studies, to the best of the author's knowledge, this dissertation represents the first comprehensive research employing this method to examine the use of neutralisation techniques in the context of sustainability reporting. While qualitative content analysis has been recommended for studies examining the use of impression management in narrative disclosures in corporate reporting (Merkl-Davies and Brennan, 2007), and subsequent studies have employed it to explore the use of neutralisation techniques in reporting (e.g., Talbot and Boiral, 2015, 2018; Boiral, 2016; Karidio and Talbot, 2020; Talbot and Barbat, 2020), this dissertation chose a different approach.

It should be highlighted that while thematic analysis shares many similarities with qualitative content analysis (Vaismoradi, Turunen and Bondas, 2013; Vaismoradi and Snelgrove, 2019), both methods should be seen more as umbrella terms, as there is no single approach to either method. Generally, both methods allow the examination of narratives related to social practice within large quantities of textual content using a systematic framework in data analysis, which involves identifying patterns to develop themes (or categories) (Vaismoradi and Snelgrove, 2019). However, two crucial aspects rationalise the choice of Braun and Clarke's (2006, 2012) thematic analysis over the qualitative content analysis approach.

First, Braun and Clarke (2021) note that (post)positivist theoretical assumptions are often incorporated into qualitative content analysis through coding verification, which involves multiple independent coders working simultaneously and measuring inter-coder agreement. Instead, thematic analysis, associated with the critical research tradition, is considered a reflexive approach to qualitative analysis (Braun and Clarke, 2021), making it a suitable choice for independently conducted research, which PhD dissertation essentially is.

The second reason for choosing Braun and Clarke's thematic analysis over qualitative content analysis pertains to features associated with data analysis and data presentation. In the thematic analysis approach, both latent and manifest contents can be considered in parallel throughout the process of data analysis (Vaismoradi, Turunen and Bondas, 2013; Vaismoradi *et al.*, 2016). In contrast, qualitative content analysis procedures often guide the researcher to analyse only manifest content or latent content (Elo and Kyngäs, 2008; Vaismoradi *et al.*, 2016), leading to a systematic concern with surface rather than hidden meanings according to Vaismoradi and Snelgrove (2019).

Indeed, the current dissertation is interested in identifying and examining patterns of explicitly made statements, as well as hidden (latent) meanings and how the latter may shape the former. As mentioned in the theoretical framework of this dissertation, corporate actors are understood to influence their stakeholders' perceptions of the rationality of organisational actions and outcomes by using accounting rhetoric (Merkl-Davies and Brennan, 2011). It is, therefore, essential to analyse not only "what companies say" but also "how they say it", as the latter is likely to shape the meanings of the former. Indeed, neutralisation techniques seek to position corporate actors and their actions in a different perspective in the minds of stakeholders (Hooghiemstra, 2000), and their implementation has been argued to require the use of linguistic devices to convince stakeholders of their acceptability (Kaptein and van Helvoort, 2019). Therefore, the final research objective was developed to provide a more nuanced understanding of how airlines construct their communication to justify their adverse climate impact. More specifically, Research Objective 4 aims **to examine how specific linguistic devices in the text are employed in neutralisation techniques to position airlines in relation to climate impact**.

In general, linguistic devices are words and sentences (Haugeland, 1998) used by text organisers to control the transmission of information through text (Baumgarten, 2003). Choosing specific linguistic devices can influence the prevailing normative circumstances, including the positions of the text organiser and its intended audiences (Haugeland, 1998). For instance, using passive verb forms can obscure the Agent of certain processes (see Blommaert and Bulcaen, 2000). In linguistic terms, Agency refers to how participants (characters or objects) are represented in relation to each other, where the Agent is the one performing the action, as expressed by the main verb in clauses (Baker and Ellece, 2011).

Although thematic analysis does not provide tools for a detailed and fine-grained analysis of language practice (Braun and Clarke, 2021), linguistic techniques from other methods can be used as a complementary asset in thematic analysis (Vaismoradi and Snelgrove, 2019), such as combining it with discursive approaches (Terry, 2016). Indeed, the final phase in Braun and Clarke's (2006) approach offered suitable premises for additional analysis where the compelling extracts illustrating the identified neutralisation techniques were placed under further linguistic analysis.

This dissertation sought guidance from critical discourse analytical methods to approach its last research objective. Critical Discourse Analysis (CDA) is not a single method but

an approach with different principles, practices, aims, theories and methods used to investigate language, discourse and communication (van Dijk, 1995). It is argued to be suitable for critical studies whose attempt is “to uncover, reveal or disclose what is implicit, hidden or otherwise not immediately obvious [… and] specifically focuses on the strategies of manipulation, legitimation, the manufacture of consent and other discursive ways to influence the minds (and indirectly the actions) of people in the interest of the powerful” (van Dijk, 1995, p. 18).

While there are no definite methods for conducting CDA (Fairclough, 1992; van Dijk, 1995), Norman Fairclough’s three-dimensional approach to CDA has been argued to be the most prominent (Blommaert and Bulcaen, 2000). As indicated by its name, the CDA, in Fairclough's (1992) view, operates in three dimensions: ‘text’, ‘discursive practice’ and ‘social practice’. The analysis in the text-level dimension involves an examination of the actual content, structure, and meanings of the text, focusing on the 'micro' aspects of discourse practice. The discursive practice dimension entails an analysis of discourse practive at the ‘macro’ level. The social practice dimension considers the social context where the discourse is situated. Fairclough further clarifies that the relevance of each dimension may vary depending on the purpose of the study, and the dimensions often tend to overlap.

The intention of this dissertation was not to conduct a full-fledged CDA by paying attention to all levels and dimensions of discourse, which is not always the case in all CDA studies (van Dijk, 1995). Instead, the goal was to utilise analytical methods associated with CDA that align with Research Objective 4. Consequently, this dissertation applied Fairclough’s CDA approach at the text-level dimension to analyse how language was used and structured within the data extracts that illustrate examples and evidence of how different neutralisation techniques surrounding the airlines’ emissions disclosures manifested (see Blommaert and Bulcaen, 2000).

While Fairclough (1992) prefers not to consider his approach a blueprint for conducting CDA, as every research project and researcher is different, he identifies general elements and considerations that can be used as resources for analysis within each dimension of his approach. Although his repertoire includes many elements and considerations for analysing the text-level dimension, such as choices and patterns related to vocabulary (e.g., wording, metaphor) and cohesion (e.g., use of elaboration), this dissertation focused on examining the lexico-grammatical meanings of the text. Following Fairclough's (1992) recommendation, this analysis subscribed to Michael

Halliday's Systemic Functional Grammar (SFG), a framework for examining lexico-grammatical devices (Trčková, 2014), whose configuration is believed to impact the interpretation of meanings (Baker and Ellece, 2011).

4.5.3 Systemic Functional Grammar

In SFG, text can be analysed in terms of three meta-functions: ideational, interpersonal, and textual, which correspond to the three dimensions of the grammar of the clause: 'transitivity,' 'theme,' and 'modality.'It is important to note that the principles of SFG are exhaustive, and a comprehensive overview of its methodology cannot be included in this chapter. Brief descriptions of each meta-functions are provided below to familiarise readers with them. These will be further referenced as necessary when presenting the analysis of results in Chapter 5 (section 5.3).

4.5.3.1 Ideational function

The ideational function relates to how the text organiser represents the world and its processes, entities, and relationships (Fairclough, 1992). Understanding this function involves analysing transitivity, which decodes experiences through the combination of 'participants' (human or non-human entities appearing as nominals) and 'processes' (verbs), often accompanied by a 'circumstance' (adverbial group or prepositional phrase answering what, when, where, who, why, and how) (Halliday and Matthiessen, 2004).

According to Halliday and Matthiessen (2004), the transitivity system encompasses three primary process types that construe the world of experience: 1) Material processes (processes of doing), 2) Relational processes (processes of being), and 3) Mental processes (processes of sensing).

Material processes

Material clauses are expressed as active sentences (Baker and Ellece, 2011). Halliday and Matthiessen (2004) depict them as "a quantum of change in the flow of events as taking place through some input of energy" (p. 179). They explain that the source of this energy is typically a participant referred to as the Actor (rather than the Agent) that initiates the change in the material clause. Material processes can be further described as Action clauses, where the Actor directs the action towards a Goal. Terminologically, such clauses are called 'transitive', following a subject-verb-object structure. Alternatively, material processes can be Events that represent non-directed happenings where the Actor appears without an explicit Goal. In this case, they can be called 'intransitive' clauses that follow a subject-verb structure. The Goal, in turn, is construed

as the participant affected by the Actor's performance in the process (Halliday and Matthiessen, 2004).

Mental processes

Mental processes are always attributed to 'human or human-like' participants who do the sensing (Baker and Ellece, 2011). These processes can reflect perceptions (e.g. seeing), cognition (e.g. thinking), desideration (e.g. wanting), or emotions (e.g., feeling), and the participant in such clauses is called the Senser, and the thing sensed is called Phenomenon (Halliday and Matthiessen, 2004). Generally, if Mental processes are used consistently in text, they can be construed as an indication of the text organiser's perceptions rather than an objective account of events (Baker and Ellece, 2011).

Relational processes

While Material processes focus on our 'outer' experiences of the material world and Mental processes on our 'inner' experiences of consciousness, Relational processes encompass both outer and inner experiences but model them as 'being' rather than 'doing' (Material process) or 'sensing' (Mental process) (Halliday and Matthiessen, 2004). Halliday and Matthiessen (2004) recognise the English language system operating on three main types of relations: 'intensive', 'possessive', and 'circumstantial', each with two modes of being 'attributive' and 'identifying'. Simpson, Mays and Statham (2019) elaborate on these two modes. In attributive mode, the participants are called the Carrier and Attribute, where the former is always the noun or phrase, and the latter expresses quality, classification, or descriptive epithet that cannot be reversed grammatically. In contrast to the attributive mode, the identifying mode does not ascribe or classify but defines one participant by the other, with the Token (or Identifier) being the participant that is defined and the Value (or Identified) being the one that defines. Because Relational clauses can manifest in different ways, Simpson, Mays and Statham (2019) note that this process type is a complex one to construe. In relation to this, Halliday and Matthiessen (2004) note that Relational clauses have a greater potential for creating ambiguity than the other process types, a feature that is often exploited in various discourses, from political rhetoric to poetry. Additionally, Relational clauses tend to express the world in a static way compared to the more dynamic Material and Mental process types (Halliday and Matthiessen, 2004), potentially making the information sound non-negotiable (Rajandran and Taib, 2014).

In addition to the primary process types – Material, Mental, and Relational – three secondary process types exist at the intersections of them: Behavioural processes

(between Material and Mental), Verbal processes (between Mental and Relational), and Existential processes (between Relational and Material). Table 9, based on Halliday and Matthiessen (2004), summarises all process types and their associated participants, along with example clauses.

Table 9 List of process types and participants.

Process type	**Clause type**	**Category meaning**	**Participants (directly involved)**	**Participants (indirectly involved)**	**Example clause**	**Notes**
Material	Action	'doing'	Actor, Goal	Recipient, Client, Scope, Initiator, Attribute	The lion caught the tourist	The process is 'directed'; the clause is also called 'transitive' (subject-verb-object)
	Event	'happening'	Actor		The lion sprang	The process is 'non-directed'; the clause is also called 'intransitive' (subject-verb)
Behavioural		'behaving'	Behaver	Behaviour	She's laughing	Partly Material, partly Mental; Can only have one (direct) participant
Mental	Perceptive	'seeing'	Senser, Phenomenon		He saw the car	The Phenomenon perceived can be a thing or act
	Cognitive	'thinking'			He knows the car	The Phenomenon is construed as impinging on the participant's consciousness
	Desiderative	'wanting'			He wants the car	Usually projects an exchange of things
	Emotive	'feeling'			He likes the car	Emotionally felt
Verbal		'saying'	Sayer, Target	Receiver, Verbiage	We say that every fourth African is Nigerian	Between Mental and Relational processes where symbolic relationships are constructed in human consciousness and enacted in the form of language (saying + meaning)

Table 9 List of process types and participants (continues). Based on Halliday and Matthiessen (2004)

Relational	Intensive	'attributing'	Carrier, Attribute	Attributor, Beneficiary (in attributive clauses)	Sara is wise	Attributive clauses are not reversible: "Sarah" (Carrier) cannot be switched around with "wise" (Attribute).
		'identifying'	Token, Value		Sarah is the leader	
	Possessive	'attributing'	Carrier, Attribute		Peter has a piano	
		'identifying'	Token, Value	Assigner (in identifying clauses)	The piano is Peter's	Identifying clauses are reversible: "Sarah" (Token, which is the participant identified) can be switched around with "the leader" (Value, which identifies the participant)
	Circumstantial	'attributing'	Carrier, Attribute		The fair is on a Tuesday	
		'identifying'	Token, Value		Tomorrow is the 10th	
Extential		'existing'	Existent		There's Christianity in the south.	Between Relational and Material processes where phenomena of all kinds are simply recognised to 'be'

Based on Halliday and Matthiessen (2004)

To summarise the section on the ideational function, "transitivity is important … as clause patterns can represent different ways of viewing the world or constructing reality, for example, by representing some people as [A]ctors and others as [G]oals" (Baker and Ellece, 2011, p. 153). These patterns may influence which social (or corporate) actors or groups are portrayed as having Agency of Power[15] (Fairclough, 1992). In this dissertation, the transitivity analysis focused on key concerns outlined by Fairclough (1992), such as Agency, the expression of causality, and the attribution of responsibility, which can be, for instance, obscured through nominalisation[16] of passive clauses.

4.5.3.2 Textual function

Textual function relates to the 'Theme', which constitutes the clause's topic, as opposed to 'Rheme', which conveys information about the topic (Halliday and Matthiessen, 2004). According to Fairclough (1992), the Theme often serves as the text organiser's starting

[15] Power can be understood as the ability to control both one's environment and the lives of oneself and others. Power is connected to discourse because discourses represent and (re)construct reality. Consequently, power relations are constructed, maintained, or contested through discourse (Baker and Ellece, 2011).

[16] Nominalisation is the process of converting verbs or adjectives into nouns. For example, "move" (verb) becomes "movement" (noun), and "difficult" (adjective) becomes "difficulty" (noun) (Baker and Ellece, 2011).

point in a stretch of discourse, and when analysing it, the objective is to identify whether "there is a discernible pattern in the text's thematic structures to the choices of themes for clauses […] and what assumptions (for example, about the structuring of knowledge or practice) underlie it" (p. 236).

4.5.3.3 Interpersonal function

Interpersonal function pertains to how social relations or identities are marked in clauses by the expression of 'modality' (Fairclough, 1992). Modality indicates the degree of possibility or necessity embedded in the uttered message, conveyed through the use of modal verbs (e.g., may, must), semi-modals (e.g., aim to, have to), and modal adverbs (e.g., perhaps, necessarily) (Baker and Ellece, 2011).

4.5.4 Intertextuality

While the analysis of the lexical-grammatical meanings of the text in this dissertation is mainly anchored in Halliday's SFG, especially its ideational function, some interesting observations were made in the analysed data extracts concerning references to or incorporation of aspects of other texts within them. This concept, known as intertextuality, is particularly adopted in CDA studies (Baker and Ellece, 2011). In Fairclough's three-dimensional approach, intertextuality is often associated with the dimension of 'discursive practice', but he also describes it as "a grey area between discourse practice and text [, which] raises questions about what goes into producing a text, but [also concerns] with features which are 'manifest' on the surface text" (Fairclough, 1992, 233). According to him, the objective of analysing intertextuality is to specify what other texts are drawn upon in the constitution of the text being analysed.

Intertextuality can take many forms in practice, such as retellings or direct references made in quotations and allusions (Baker and Ellece, 2011). This dissertation pays occasional attention to specifying whose utterances are drawn upon in certain observed neutralisation techniques. One of the reasons for analysing such intertextuality is the realisation that texts incorporated into other texts do not happen by accident but for a reason; for instance, intertextuality has been reported to be used in corporate reporting to narrow potential credibility gaps (Rajandran and Taib, 2014).

4.6 Summary

This chapter provided a detailed overview of the data selection process and analytical methods, guided by the research objectives aimed at addressing this dissertation's two research questions.

In summary, this dissertation sheds light on the extent of the airline industry's emissions disclosure by first mapping the industry's engagement in emissions reporting for FY19. Based on this, a counter-accounting study was conducted for reports adhering to the GRI Standards, operationalised using content analysis, to examine the scope and compliance of the emissions disclosure against the GRI's disclosure criteria while also evaluating potential reporting bias associated with concealment.

Next, to elucidate how communication surrounding these disclosures was constructed to justify the industry's adverse emissions performance, this research first explored the employment of neutralisation techniques through thematic analysis following Braun and Clarke's six-phase approach. This method was then combined with critical discourse analytical methods, based on Halliday's SFG, to understand how the choice of linguistic devices in the execution of neutralisation techniques may influence the perceptions of organisational audiences regarding the position of airlines and other stakeholders in relation to the industry's adverse climate impact.

The following chapter (Chapter 5) delves into a detailed analysis and interpretation of the obtained results using the methods described in this chapter.

Chapter 5
Analysis of results

5.1 Introduction

As explained in the previous chapter, the empirical part of this dissertation was conducted in two phases, each addressing one of the two research questions posed in this research, with specific research objectives guiding each phase. This chapter is divided into two main sections, presenting the results and interpretation of the first and second research phases, respectively.

The analysis in Phase 1 was conducted to address Research Question 1: **To what extent are emissions disclosed in the global airline industry's sustainability reporting?** Section 5.2 reports the findings associated with this question. It first reveals the overall presence of emissions reporting among airlines that conducted corporate reporting in FY19. The extent of the airlines' emissions disclosures is then assessed among those airline companies that claimed to report emissions information in compliance with the GRI Standards, the most significant SR framework used by the industry. While the findings demonstrate that many airlines have chosen not to report several important GRI emissions disclosures, the results of the counter-accounting study reveal something more significant: the actual extent to which emissions are disclosed in compliance with the GRI Standards is alarmingly low, affecting the credibility and transparency of this information.

The analysis in Phase 2 was conducted to address Research Question 2: **How is the communication surrounding emissions disclosures constructed to justify the industry's adverse climate impact?** Section 5.3. presents the main neutralisation techniques that were identified through thematic analysis. To better illustrate and understand the use of these techniques, each observed technique is presented using vivid and compelling extracts, whose lexico-grammatical features are analysed using SFG to reveal how airlines position themselves in relation to their climate impact. Overall, the findings demonstrate that airlines employ various neutralisation techniques to rationalise and legitimise their environmentally adverse operations. The use of these techniques is often accompanied by language that is strategically employed to manage the attribution of responsibility, often obfuscating the airline's role in negative environmental outcomes while claiming responsibility for successful or optimistic outcomes.

5.2. Results of Phase 1

5.2.1 The extent of emissions reporting

It is important to highlight that the analysis in the latter parts of this research primarily focuses on examining the disclosures in the FY19 reports of 19 airlines that claimed to report their emissions in compliance with the GRI Standards. The sampling procedure that led to this sample was detailed in section 4.4.1. However, a brief summary is in order, as the procedure, operationalised by Research Objective 1, guided the research to identify the major reporting frameworks commonly used in the global airline industry's emissions reporting. Simultaneously, the results of this procedure provide an overview of the industry's emissions reporting activity in FY19 and thus partially help address Research Question 1: To what extent are emissions disclosed in the global airline industry's sustainability reporting?

The sampling procedure initially mapped the reporting activity of 339 airlines (297 IATA members and 42 non-members) for their FY19 reporting, using official airline websites, the GRI Sustainability Disclosure Database, and CDP's responses page as sources. After excluding non-eligible airlines[17], 125 out of 284 qualifying passenger airlines were identified in reports, with 81 distinct[18] companies having published these reports. Analysis of these reports' contents reveals that 51 of the 81 airline companies that had conducted corporate reporting in English during FY19 had also included information on their direct carbon emissions. This finding already offers a partial answer to Research Question 1 by indicating that approximately 63% of global airlines engaged in FY19 corporate reporting (published in English) also provided emissions disclosures related to their flight operations. Conversely, over one-third (37%) of the reporting airline companies either did not find it relevant to release this information or had other reasons for not disclosing their emissions data.

Further analysis shows that the GRI was the most commonly used framework for reporting emissions disclosures, utilised by 28 companies, followed by 23 companies responding to the CDP's climate survey, six using SASB to report emissions and five following the recommendations of TCFD. Notably, these frameworks have certain degrees of alignment in their reporting requirements and recommendations (CDP *et al.*,

[17] Non-eligible airlines included cargo carriers (n=25), wet leasing companies (n=4), private charters (n=1), airlines that had ceased operations or were grounded (n=8), and airlines reporting in languages other than English (n=17).

[18] Of the 125 airlines identified in the reports, 44 were included in combined reports from affiliated airline groups rather than in separate reports. Consequently, the number of distinct reporting companies was 81.

2019). Therefore, reporting under one framework does not preclude the use of others, as was also observed in the reports analysed in this research. However, the prevalence of the GRI, which is also consistently identified in the literature as the most popular framework for SR (Brown, de Jong and Levy, 2009; Nikolaeva and Bicho, 2011; KPMG, 2017, 2020), was one of the primary reasons for focusing on GRI-based emissions reporting in the remaining parts of this research.

5.2.2 The application of the GRI Standards

Besides its widespread popularity in the SR field, the GRI is widely believed to enhance the credibility of such reporting (KPMG, 2013). In practice, however, this credibility is closely linked to the GRI's specified application levels, which reflect the quality of reporting and set expectations for the reader regarding the availability of certain information in the reports (Liu, Jubb and Abhayawansa, 2019). The 2016 edition of the GRI Standards allows organisations to either prepare reports' 'in accordance' with the Standards at the Core or Comprehensive levels, which requires adherence to specific disclosure requirements or to use the 'GRI-referenced claim', which permits reporting on selected GRI disclosures without preparing the report in accordance with the Standards (GRI, 2018b).

As mentioned earlier, this dissertation argues that the true extent of GRI-based emissions disclosure cannot be measured without considering possible non-compliance with the disclosure requirements. Consequently, the following assessment focuses on reports that have claimed compliance with the Standards. Before proceeding with this analysis, it is important to reiterate that while 28 airline companies utilised the GRI reporting framework as part of their emissions reporting, eight companies[19] had opted to use the GRI-referenced claim rather than claiming compliance with the Standards, which is why they were excluded from further analysis. As such, this is an important observation since this option under the GRI Standards' 2016 edition allows the report preparers to report selected GRI-specified disclosures or parts of their content without fully preparing them in accordance with the GRI Standards (GRI, 2018a). While companies may have various reasons for choosing this option instead of adhering to the GRI Standards, including a lack of skills in such reporting (see Merkl-Davies and Brennan, 2007), opting for the GRI-referenced claim has undoubtedly provided greater flexibility in deciding what information is disclosed, while still linking reporting to the GRI and its associated

[19] Air Tahiti Nui, Air China, Cathay Pacific, China Southern Airlines, Air Baltic, Croatia Airlines, Evelop Airlines, Southwestr Airlines

credibility (see Ringham and Miles, 2018). Therefore, opting for the GRI-referenced claim could also be seen as a way for firms to engage in various impression management strategies. Arguably, choosing this option allows firms to practice symbolic management, particularly ceremonial conformity, where they can symbolically adopt GRI reporting without complying with its disclosure requirements (see Aravind and Christmann, 2011). Likewise, this approach can facilitate the use of concealment strategies, notably, the use of enhancement tactics, which involve selective data disclosure (Merkl-Davies and Brennan, 2007) intended to portray an idealised image of the firm (Boiral *et al.*, 2022). In this context, it is important to distinguish between reports claiming compliance with the GRI Standards and those using the GRI-referenced claim with regard to potential impression management. Reports claiming compliance with the GRI Standards may exhibit reporting bias by concealing information while creating an appearance of full disclosure. In contrast, reports using the GRI-referenced claim are not subject to the same disclosure requirements and, therefore, cannot be expected to include all information specified by the GRI Standards, nor can they be criticised for non-compliance with the requirements that do not apply to them in the same sense as they do to those claiming compliance with the Standards.

Another important point to note is that out of the remaining 20 reports, only one claimed compliance with the GRI Standards at the Comprehensive level, while the rest adhered to the Core option. The primary distinction between these two levels lies in the scope of required disclosures. Reports following the Comprehensive option must comply with all disclosures from the GRI's Universal Standards, as well as all disclosures for each topic identified as material by the company unless GRI-approved reasons for omission are provided. In contrast, reports adhering to the Core option have more flexibility, with only certain disclosures required to be reported and complied with from the Universal Standards and at least one disclosure for each topic they have identified material, with the option to provide reasons for omissions. In other words, when it comes to emissions reporting, if a company identifies emissions as a material topic, it must report all seven GRI emissions disclosures when following the Comprehensive level or at least one emissions disclosure if it follows the Core level.

Companies may have several reasons for choosing the Core option over the Comprehensive one. One reason could be insufficient resources to collect all the necessary data, which was also highlighted in the literature review as a factor limiting airline companies' CSR activities (Coles, Fenclova and Dinan, 2014; Kuo *et al.*, 2016). However, another plausible explanation for choosing the Core option could lie in

impression management. Similar to using the GRI-referenced claim, opting to indicate compliance with the Core option arguably allows companies to conceal certain information. This enhancement tactic, achieved by selectively including specific disclosures rather than reporting all of them, allows firms to avoid presenting a complete picture of their emissions performance. This approach may also constitute ceremonial conformity, as the Core option enables companies to associate their reporting with the GRI Standards without fully committing to transparent and comprehensive reporting. However, companies cannot be expected to report all emissions disclosures under the Core option, as they are not obligated to do so, and, in the strictest sense, they cannot be criticised for not reporting disclosures beyond those required.

5.2.3 The extent of reported GRI disclosure

In this dissertation, in addition to assessing the scope of the airlines' GRI-based emissions disclosures and their compliance with the GRI Standards, a similar assessment was conducted on four General Disclosures, as introduced earlier in Chapter 4 (see Table 5, p. 108), which are required to be reported regardless of whether a company claims compliance with the Core or Comprehensive option. Disclosure 102-55 (GRI content index) is one of these disclosures. IATA's handbook describes the GRI content index as follows:

> "The report should contain a content index–a navigation tool to help trace information in the report. This is usually in the form of a table, showing the topics covered, the disclosures used and their location in the report" (IATA, 2020, p. 22).

In other words, the GRI content index should summarise the disclosures an airline company claims to have made in accordance with the GRI's Universal and Topic-specific Standards. Thus, the GRI content index alone can be used to measure the extent to which airline companies claim to have reported specific emissions disclosures. However, one airline initially included in the sample (Air Asia), which claimed compliance with the GRI Standards at the Core level, did not include the GRI content index in its report or use the GRI's disclosure numbers elsewhere in the report. This lack of adherence constitutes a clear breach of the GRI Standards, making it difficult for readers to locate pertinent information, which is also why this report is excluded from further analysis.

The following analysis measures the frequencies of disclosures reported (i.e. recording units) across the FY19 reports of 19 airline reports (i.e. sampling units), with one adhering to the Comprehensive option and 18 to the Core option. Tables 10 (p. 142) and

11 (p. 144) summarise the findings of this analysis, showing the disclosure rates for each disclosure and the degree to which they were compliant with the GRI Standards (discussed in more detail in Section 5.2.4).

5.2.3.1 General Disclosures

In addition to the seven emissions disclosures, a cross-verification exercise was conducted on four disclosures from the GRI's General Disclosures. The rationale for including Disclosure 102-55, as discussed in the previous section, was to assess the extent to which airline companies claim to have reported specific emissions disclosures. Disclosure 102-46 was reviewed to verify whether emissions were identified as one of the company's material topics. This disclosure requires the reporting organisation to provide a list of topics it has identified as material in the process of defining its report content. If emissions (or a similar topic[20]) appear on this list, the organisation is expected to report and comply with the GRI 305: Emissions Standard. Disclosure 102-54 was included in the analysis to verify the company's claimed GRI application level (Comprehensive or Core), helping to determine whether the reports should have included all GRI emissions disclosures (at Comprehensive level) or at least one (at Core level). Finally, Disclosure 102-56 was cross-checked to assess the reporting airline companies' approach to external assurance, allowing for comparisons between disclosures that had been externally assured and those that had not. The disclosure rates for these four General Disclosures can be seen in Table 10 on the following page, with a complete overview for each airline provided in Appendix 9.

As far as the disclosure rates for these four general disclosures are concerned, all 19 reports claimed to have reported all of them. This is not surprising, as these disclosures must be covered in reports claiming compliance with the GRI Standards, regardless of whether the application level is Core or Comprehensive, and neither level permits omissions for these disclosures (GRI, 2018b). Some remarks are nevertheless worth making.

[20] "The list of topics covered by the GRI Standards is not exhaustive. In some cases, an organization may identify a material topic that does not match exactly with the available topic-specific Standards. In this case, if the material topic is similar to one of the available topic Standards, or can be considered to relate to it, the organization is expected to use that Standard for reporting on the topic in question" (GRI, 2016b, 18)

Table 10 Cross-verification of selected GRI General Disclosures

GRI general disclosure	**102-47**	**102-54**	**102-55**	**102-56**
	List of material topics	Claims of reporting in accordance with the GRI Standards	GRI content index	External assurance
Disclosure reported (Disclosure rate)	19 (100%)	19 (100%)	19 (100%)	19 (100%)
Not reported omission not provided	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Not reported omission provided	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Disclosure fully compliant*	19 out of 19 (100%)	15 out of 19 (78.9%)	16 out of 19 (84.2%)	17 out of 19 (89.5%)
Disclosure fully non-compliant**	0 out of 19 (0%)	4 out of 19 (21.1%)	0 out of 19 (0%)	1 out of 19 (5.3%)
Average compliance rate***	100%	78.9%	92.1%	92.1%
Average non-compliance rate	0%	21.1%	7.9%	7.9%

N=19 *) Disclosures that met all disclosure requirements (i.e. 100% compliance) **) Disclosures that did not meet any disclosure requirements (i.e. 0% compliance); ***) The average disclosure compliance rate, based on reports that included the disclosure.

While all 19 airlines reported emissions using the GRI 305 disclosures, not all airline companies identified emissions as a material topic. Specifically, 16 reports identified emissions – or related issues such as climate change and air pollution – as a material topic. Conversely, three airlines do not. Avianca's (2020) report mentions "climate change mitigation" as part of its materiality analysis, but it is not listed among its material topics; instead, it is assigned a medium level of importance. Similarly, while Air Canada's (2020) report identifies "greenhouse gas (GHG) emissions" as part of its materiality assessment, the issue does not appear on its list of material topics. Azul's (2020) sustainability report neither mentions emissions nor related topics as part of its materiality, yet the report includes GRI 305 emissions disclosures.

Several factors may explain why these companies reported emissions despite not prioritising the issue. The airlines may have sought to respond to investor demands (agency theory) by reporting emissions even if their internal assessments do not consider the issue a priority. However, a closer look at the reports reveals that the process of prioritising material topics involved stakeholder consultation in some form. This may suggest that shareholders involved in the materiality assessments may not have focused on climate-related risks, even though their relevance is likely to increase due to regulatory changes (see Herbohn, Clarkson and Wallis, 2022). Indeed, the pressure to align reporting with regulatory requirements, industry norms, and practices followed by peers (institutional theory) may further explain companies' decision to report emissions in accordance with the GRI Standards.

Another remark is that although all airlines reported Disclosure 102-56, this does not mean that external auditors would have verified all 19 reports' GRI 305 emissions disclosures. Essentially, Disclosure 102-56 (GRI, 2018b) asks the reporting organisation to describe their "policy and current practice with regard to seeking external assurance for the report", as well as clarify "what has and what has not been assured" (p. 41). A closer review of the reports shows that while external assurance was sought by 10 of the 19 airlines, only seven reports (or their accompanying assurance statements) clearly indicate that certain GRI emissions disclosures were externally assured. The number of assured emissions disclosures and the level of assurance also vary across the reports, with a complete overview for each airline provided in Appendix 10.

5.2.3.2 Emissions disclosures

The basic descriptive statistics reveal that the number of GRI emissions disclosures per report varied from 1 to 7, with a mean of 4.47, a median of 5, and a standard deviation of 1.54. Only two airlines reported all seven disclosures. One of them (Delta) reported at the GRI's Comprehensive application level, and the other (LATAM) at the Core level. The remaining 17 airlines, all of which reported at the Core level, included the emissions disclosures in their reports to varying degrees (see Appendix 10 for a full breakdown). This variability is not surprising; as previously mentioned, reports following the Comprehensive option must include all disclosures for each material topic or provide reasons for omissions. In contrast, reports following the Core option must report at least one disclosure for each material topic and may also provide reasons for omissions.

The guidance provided by the GRI (2018a) for organisations claiming compliance with the Core option further states that "[i]f the reporting organization does not report every disclosure for a given topic, it is expected to select and report the disclosure(s) that most adequately reflect its impacts for that topic" (p. 22). On that end, it is worth highlighting that despite the airline industry's significant impact on climate, and even if all GRI 305 disclosures can be considered relevant for reporting within the industry (IATA, 2020a), many companies chose not to disclose certain emissions information. Table 11 on the following page shows the disclosure rates, non-disclosure rates, and the rate for reports that have given a reason for omitting certain disclosures. Some remarks in this regard deserve attention.

All but one airline reported GRI 305-4 (GHG emissions intensity), making it the most frequently reported GRI emissions disclosure, with 94.7% of the reports including it. Although nearly all observed reports included this disclosure, a closer look reveals some

challenges with the GRI Standards. While the GRI claims that its framework enables standardised reporting (GRI, 2021), its requirements leave many decisions to the reporting organisation in terms of how the information is presented. Specifically, in the case of Disclosure 305-4, the Standard requires the reporting organisation to select an appropriate ratio denominator to represent the per-unit output, activity, or other organisation-specific metric and then calculate the intensity ratio by dividing absolute emissions (the numerator) by this chosen denominator. “The selection of the most appropriate ratio denominator is left to the discretion of the organiztion” (CDP and GRI, 2017, p. 31). Although IATA's (2020a) sustainability reporting handbook recommends that airlines report CO_2 efficiency in tonnes CO_2 per 100 RTK (tCO_2/100RTK), where 100RTK (revenue tonne-kilometre) serves as the denominator, it is not a required metric in the GRI’s Emissions Standard, and airlines may choose other denominators.

In the observed reports, Air Canada (2020b), China Airlines (2020), EVA AIR (2020), LATAM Airlines (2020), and Korean Air (2020) used 100RTK as the denominator, aligning with IATA’s recommendation, while other airlines selected different metrics. For example, Aeromexico (2020), GOL (2019), and SAS (2020) used ASK (available seat kilometre); Singapore Airlines (2020) used LTK (load-tonne-kilometre); and Avianca (2020), Azul (2020), Thai Airways (2020), and Volaris (2020) used RPK (revenue passenger kilometre) as the denominator. While the GRI Emissions Standard allows companies to select an organisation-specific denominator for calculating the emissions intensity ratio, using different denominators not only focuses on different operational aspects but also complicates stakeholders' ability to compare emissions efficiency across the industry.

As shown in Table 11, after Disclosure 305-4, the most frequently reported disclosures were GRI 305-1 Direct [Scope 1] GHG emissions, 305-5 (GHG Reduction of GHG emissions), and 305-2 (Energy indirect [Scope 2] GHG emissions). However, many disclosures were left unreported, with no reasons provided for the omissions. The least frequently reported emissions disclosures in the observed sample were GRI 305-6 (Emissions of ozone-depleting substances), 305-3 (Other indirect [Scope 3] GHG emissions and 305-7 (Nitrogen oxides, sulfur oxides, and other significant air emissions).

Table 11 Cross-verification of GRI emissions disclosures

GRI emissions disclosure	305-1	305-2	305-3	305-4	305-5	305-6	305-7
	Direct (Scope 1) GHG emissions	Energy indirect (Scope 2) GHG emissions	Other indirect (Scope 3) GHG emissions	GHG emissions intensity emissions	GHG Reduction of GHG emissions	Emissions of ozone-depleting sub-stances	Nitrogen oxides, sulfur oxides, and other significant air emissions
Disclosure reported (Disclosure rate)	17 (89.5%)	15 (78.9%)	7 (36.8%)	18 (94.7%)	16 (84.2%)	3 (15.8%)	9 (47.4%)
Not reported omission not provided	0 (0%)	2 (10.5%)	10 (52.6%)	1 (5.3%)	3 (15.8%)	15 (78.9%)	9 (47.4%)
Not reported omission provided	2 (10.5%)	2 (10.5%)	2 (10.5%)	0 (0%)	0 (0%)	1 (5.3%)	1 (5.3%)
Disclosure fully compliant*	1 out of 17 (5.9%)	1 out of 15 (6.7%)	0 out of 7 (0%)	6 out of 18 (33.3%)	1 out of 16 (6.3%)	0 out of 3 (0%)	3 out of 9 (33.3%)
Disclosure fully non-compliant**	0 out of 17 (0%)	3 out of 15 (20%)	0 out of 7 (0%)	1 out of 18 (5.6%)	2 out of 16 (12.5%)	1 out of 3 (33.3%)	2 out of 9 (22.2%)
Average compliance rate***	34.6%	34.0%	42.9%	72.2%	37.5%	16.7%	48.1%
Average non-compliance rate	65.4%	66.0%	57.1%	27.8%	62.5%	83.3%	51.9%

N=19 *) Disclosures that met all disclosure requirements (i.e. 100% compliance) **) Disclosures that did not meet any disclosure requirements (i.e. 0% compliance); ***) The average disclosure compliance rate, based on reports that included the disclosure.

As shown in Table 11, after Disclosure 305-4, the most frequently reported disclosures were GRI 305-1 Direct [Scope 1] GHG emissions, 305-5 (GHG Reduction of GHG emissions), and 305-2 (Energy indirect [Scope 2] GHG emissions). However, many disclosures were left unreported, with no reasons provided for the omissions. The least frequently reported emissions disclosures in the observed sample were GRI 305-6 (Emissions of ozone-depleting substances), 305-3 (Other indirect [Scope 3] GHG emissions and 305-7 (Nitrogen oxides, sulfur oxides, and other significant air emissions).

It may be debatable whether all GRI emissions disclosures, such as 305-6: Emissions of ozone-depleting substances (ODS), are relevant for the industry to report. The Montreal Protocol, adopted in 1987, has successfully phased out nearly 100 ODS, including halons, worldwide; consequently, sources of ODS, such as cooling equipment (e.g., refrigerators and air conditioners), are now generally regarded as less relevant issues (European Commission, 2022a). As a result, the number of concerned sectors is limited to a few; however, aviation is one of them, where exemptions remain for specific uses of halons in fire extinguishers (European Commission, 2022a; ICAO, 2022). IATA's sustainability reporting handbook (IATA, 2020a) also identifies all GRI 305 emissions disclosures, including GRI 305-6, as relevant for the industry to report. Nevertheless, many airline companies have thought otherwise, with a clear majority (78.9%) of the

reviewed reports not reporting it without providing any reason for omitting this information.

Fewer than half of the airlines (36.8%) reported Disclosure 305-3, which covers other indirect (Scope 3) GHG emissions. One reason for not reporting 305-3 may be the complexity of calculating Scope 3 emissions compared to Scope 1 (direct GHG emissions) and Scope 2 (indirect GHG emissions) emissions (Yoon, Oh and Kim, 2024). Scope 3 emissions encompass a range of upstream and downstream emissions that occur due to the firm's activities but are not owned or controlled by it (GRI, 2018c). In the context of the airline industry, examples of Scope 3 emissions include "the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g., T&D losses) not covered in Scope 2, outsourced activities, and waste disposal (including methane emissions from landfilling)" (IATA, 2020a, p. 29). Reporting Scope 3 emissions can be challenging because they are difficult to quantify, their estimates may face attestation, and many companies may lack the resources or capabilities to report them (Yoon, Oh and Kim, 2024). Despite these potential challenges, only two companies (10.5%) provided reasons for omitting this disclosure, while over half (52.6%) left it unreported without any reason given, as permitted by their chosen application level (Core).

The situation with unreported disclosures is particularly worrying for Disclosure 305-7, which asks the reporting organisation to report various other pollutants than CO_2. While some of the pollutants falling under this category, such as carbon monoxide (CO) and unburned hydrocarbons (HC), have gradually become insignificant for the industry (IATA, 2020a), several aviation-induced non-CO_2 gasses have been identified as significantly contributing to global warming, including NO_x, water vapour, soot, and SO_x, which may even be warming the climate three times as much as that of the CO_2 alone (Lee *et al.*, 2021). Although IATA's (2020a) sustainability reporting handbook identifies some pollutants, like SO_x, as being difficult for airlines to monitor, as they relate to the quality of jet fuel used, the handbook considers NO_x emissions material for the industry. Yet nearly half (47.4%) of the companies had chosen not to report it. Also, only one airline provided a reason for omitting this disclosure due to unavailable information.

Overall, only eight reasons for omissions were provided in the observed emissions disclosures, four of which were made by Aeromexico, three by Thai Airways and one by Aegean Airlines. This finding is unsurprising, as the Core level requires organisations to

report and comply with at least one topic-specific disclosure for each material topic. While organisations may provide reasons for omitting additional disclosures, the flexibility inherent in the Core level arguably results in fewer explanations for omissions.

The observed omissions in the three reports are also somewhat questionable. According to GRI (2018a), organisations that provide reasons for omissions must specify their justification as one of the GRI-approved categories, namely, not applicable, confidentiality constraints, specific legal prohibitions, or unavailable information. Each of these categories requires the reporting organisation to include a specific explanation for the chosen reason. Notably, while all observed omissions were specified in accordance with the GRI-approved categories – five as 'information unavailable' and three as 'not applicable' – only one of the omissions was explained; the others were not. In the strictest sense, this lack of explanation could be construed as a breach of the GRI Standards. To illustrate this negligence, Aeromexico reported omitting GRI's 305-2, 305-3, 305-6, and 305-7 disclosures on the ground of unavailable information. However, the report failed to explain why "the necessary information cannot be obtained" and did not describe "the specific steps being taken to obtain the information," as required by the GRI (2018a, p. 24).

Similarly, Thai Airways reported omitting GRI's 305-1, 305-2, and 305-3 disclosures, classifying the information as 'not applicable' without providing the required explanation of "the reason(s) why the disclosure is considered to be not applicable" (GRI, 2018a, p. 24). While Thai Airways did not offer any specific explanation, their assertion that GRI 305-1 (Direct [Scope 1] GHG emissions) is not applicable to the company seems particularly peculiar. This claim is questionable not only because direct aviation emissions represent a significant environmental impact but also because Thai Airways (2020) identifies emissions as one of its material topics and actually reports emission information deriving from its flight operations as part of its report, which are Scope 1 emissions.

Aegean Airlines also states in its GRI content index that it has omitted GRI 305-1 on the grounds of 'information unavailable,' despite actually reporting its CO_2 and several other GHG emissions from all its flights in another part of the report. Unlike Thai Airways, Aegean has provided an explanation for the omission, stating that "[t]he emissions of fuels…of the corporate fleet are not disclosed" and that "[t]he total emissions in tons of CO_2 equivalent are not disclosed, but the amount of emissions for each gas [is] reported separately" (Aegean Airlines, 2020, p. 127). This explanation seems problematic

because claiming that fuel emissions are not disclosed is inconsistent with Aegean's own disclosures regarding GHG emissions from all its flights, thereby creating ambiguity about the information that is claimed to be unavailable.

5.2.4 Disclosure of non-compliant information

As argued earlier in this dissertation, the real extent of emissions disclosure cannot be measured without considering potential non-compliance with the disclosure requirements that airlines claim to follow. To provide a more balanced picture of the airlines' actual emissions disclosure, this dissertation used a counter-accounting approach to cross-check the extent to which the reported disclosures of the 19 airlines complied with the GRI Standards. As explained in the Methodology Chapter, the information found in the reports corresponding to each observed disclosure was coded as either 'compliant information' or 'non-compliant information,' depending on whether the analysed disclosure adhered to the required components of each disclosure (all components were outlined in Tables 5-6 (pp. 108-109). In cases of non-compliance, the type of non-compliance was classified into three categories: 'complete lack of information,' 'incomplete information,' and 'unrepresentative information. To reiterate the methodology, a total of four out of the nineteen airline reports were reviewed and coded by the author of this dissertation and his supervisor to check intercoder reliability (ICR), which showed an 83% agreement between the two coders. The rest of the dataset was coded by the author.

The results of cross-verification are summarised in the previously shown Tables 10 and 11, which present the number of disclosures that were deemed fully compliant and fully non-compliant. It is important to emphasise that many of the observed GRI disclosures consist of several specific disclosure requirements, all of which must be met for a disclosure to be considered fully compliant. In many cases, reports were deemed to demonstrate partial compliance, meaning that only some of the disclosure requirements were fulfilled. Details on the extent to which each individual airline company's report met the specific disclosure criteria are provided in Appendices 10 and 11 (to be enclosed). Tables 10 and 11 display the average compliance rates for each disclosure, calculated from all the reports that included those specific disclosures.

The cross-verification of the data was conducted on the four reported General disclosures, as well as all GRI 305 Emissions disclosures across the reports of the 19 airlines. Finally, frequencies were computed for the occurrence of each type of non-

compliance across both groups of disclosure. The results of this analysis are reported separately below.

5.2.4.1 General Disclosures

As shown in Table 10 (p. 142), the average compliance rates for the observed GRI General Disclosures are relatively high: 102-47 (100%), 102-54 (78.9%), 102-55 (92.1%), and 102-46 (92.1%). These high compliance rates may be attributed to the mandatory nature of these disclosures for any organisation that has claimed to prepare its report in accordance with the GRI Standards 2016 edition. Additionally, the reporting requirements (outlined in Tables 5-6, pp. 108-109) for each of these disclosures are relatively easy for organisations to fulfil, as they require little or no information that the report organiser needs to collect to report them. Overall, only nine occurrences of non-compliance were recorded; six (66.7%) were categorised as unrepresentative information and three (33.3%) as incomplete information.

Much of this non-compliance is likely attributable to the companies' negligence in adhering closely to the disclosure requirements outlined in the GRI 2016 Standards. For example, the lowest compliance rate, which was recorded for disclosure 102-54, requires the reporting organisation to use specific wording when indicating whether the "report has been prepared in accordance with the GRI Standards: Core option" or "in accordance with the GRI Standards: Comprehensive option" (GRI, 2018b, p. 37). In this context, companies such as Avianca and Volaris have erroneously used the term "Essential option" instead of "Core option" when referring to the application level in the sections where this disclosure is made. In this research, the correct application levels were, nevertheless, verifiable based on the data obtained from the GRI Sustainability Disclosure Database. Although the term "Essential" has been mistakenly used in the sustainability reporting field, particularly in the Spanish-speaking world (see, e.g., Henriques, Gaio and Costa, 2022; Henrique *et al.*, 2023), using an incorrect term constitutes inherently unrepresentative information as it does not correspond to the information requested in the disclosure requirements and, therefore, hinders the reader's understanding of the application level used in the report.

Another example of unrepresentative information in this context can be found in Delta's report, where the GRI content index (Disclosure 102-55) indicates disclosure locations using chapter names instead of the page numbers (or URL) where the information can be found (GRI, 2018b, p. 38). Such practice makes it difficult and time-consuming for the reader to locate specific disclosures, including emissions disclosures, as each chapter

spans multiple pages, complicating the search for information. In a similar vein, Icelandair's report indicates which disclosures have been made in its GRI index, but for numerous disclosures, the index fails to provide any locations in the report for the corresponding information. This type of non-compliance with the disclosure requirements is an example of incomplete information that affects the quality of the report and requires the reader to spend additional time searching through the report to find the relevant data.

5.2.4.2 Emissions disclosures

The quality of the information disclosed is much more of a concern for the industry's reported emissions disclosures. The cross-verification of the information against the GRI's disclosure requirements indicates that nonconformity with the GRI Standards existed across all reports despite the companies' claims of adherence to the standards. The previously presented Table 11 displayed the number of disclosures that were fully compliant and fully non-compliant and the average compliance rates for all seven GRI emission disclosures.

GRI 305-4 (GHG emissions intensity) exhibited the highest level of compliance, with Singapore Airlines, SAS, Aeromexico, Air Canada, Avianca, and Delta Airlines – representing 33.3% (6 out of 18) of airlines reporting it – demonstrating full adherence to its requirements. On average, 72.2% of the disclosure requirements for this standard were met by the 18 airlines that included it in their reports.

At the other end of the spectrum, no airline reporting GRI 305-3 (Other indirect [Scope 3] GHG emissions) or GRI 305-6 (Emissions of ozone-depleting substances) showed full compliance with their requirements. With regard to GRI 305-2 (Energy indirect [Scope 2] GHG emissions), Korean Air, China Airlines, and SAS – representing 20% (3 out of 15) of the airlines reporting this disclosure – failed to adhere to any of its requirements and were, therefore, deemed fully non-compliant with this disclosure. Similarly, Turkish Airlines and Volaris – representing 22.2% (2 out of 9) of the companies reporting 305-7 (NOx), failed completely to comply with the respective disclosure requirements. Overall, the average compliance rates of less than 50% for each emissions disclosure – except for GRI 305-4 – highlight an alarmingly low quality of the reported data.

As far as the external assurance is concerned, Disclosure 305-1 (Direct [Scope 1] GHG emissions) was the most frequently assured emissions disclosure in the observed reports. Six reports (or their accompanying assurance statements) clearly indicated that Disclosure 305-1 had been verified by an external assurance provider. Out of these six

reports, only one (Air Canada) was fully compliant with its disclosure requirements; the others were not. Results show a marginally higher average compliance rate for the verified disclosures (n=6, $\bar{x}$ = 42.1%) than for the unverified disclosures (n=8, $\bar{x}$ = 34.8%).

Similar patterns were observed for Disclosure 305-2 (Energy indirect [Scope 2] GHG emissions) and 305-4 (GHG emissions intensity), which were the next most frequently assured disclosures, each verified in five reports. Disclosure 305-2 showed a slightly higher average compliance rate for verified disclosures (n=5, $\bar{x}$ = 40.0%) than for unverified disclosures (n=8, $\bar{x}$ = 36.3%), while Disclosure 305-4 had equal average compliance rates between verified and unverified groups (n=5, $\bar{x}$ = 75.0%; n=10, $\bar{x}$ = 75.0%). It should be noted that the sample sizes within these groups are very small, and statistical significance was not tested for them. Nevertheless, the key takeaway here is that non-compliance was observed regardless of the assurance status.

The observed non-compliance was not mentioned in the assurance reports attached to the airlines' sustainability reports. Instead, the external assurance companies consistently concluded that they were "not aware of any significant errors or inappropriate descriptions", like in Korean Air's (2020, p. 61) assurance report. EVA AIR's (2020) third-party assurance report declared, in turn, that "the information and data … is accurate, reliable and provides a fair and balanced representation" (p. 122). LATAM Airline's (2020) external assurance report stated that "no aspects [had] arisen to lead [them] to believe that the report … has not been prepared in accordance with the GRI Standards in those areas identified in the scope" (p. 117). It is important to point out that LATAM Airlines, like many others (see Appendix 10), sought only limited assurance. In principle, this means the level of assurance obtained is substantially lower than what would have been provided under a reasonable assurance engagement (Krasodomska, Simnett and Street, 2021). Therefore, it is unsurprising that numerous non-compliance instances were observed across the dataset.

In total, 243 instances of non-compliance were recorded across the examined emissions disclosures, which appear as a complete lack of information, incomplete information and unrepresentative information, all of which can affect the reader's understanding of the reported information and make benchmarking challenging. Examples of each observed category are provided below.

Complete lack of information

The first observed category of non-compliance concerns a complete lack of information on the given disclosure component. This was the most observed category, representing 67.1% (n=163) of the nonconformities in the observed data of non-compliant emissions disclosures. A worrying example of such non-compliance was found across disclosures (i.e. 305-1, 305-2, 305-3, 305-5, 305-6, and 305-7) where the GRI requires the reporting organisation to share information on the standards, methodologies, assumptions, and/or calculation tools used to calculate emissions and emission reductions. While companies can use various standards, methodologies and protocols to aid in collecting and reporting GHG data, and a large majority often refers to the GHG Protocol as their basic reference (CDP, 2017), many airlines disclosed no evidence whatsoever on the methods used to arrive at their reported emission performance figures. This is worrying for two reasons. First, regardless of the reason for the missing information, such deficiency may affect the reader's understanding of the data disclosed (Talbot and Boiral, 2018). Second, while the missing information might be caused by various reasons, including inexperience in reporting or unintentional negligence, it may also resemble a form of impression management that previous research has called strategic omission, whose purpose is to influence stakeholders' perceptions by deliberately forgetting to disclose certain information or parts of it (Talbot and Barbat, 2020).

Incomplete information

The second most observed type of nonconformity, occurring in 21.4% (n=52) of the non-compliant emissions disclosures, consists of incomplete information. Similar to the previous category, companies leave information undisclosed, but in this case, only partly. In general, companies' tendency to provide incomplete information helps them create an idealised image of their situation as it helps attract the reader's attention to more positive elements (Talbot and Boiral, 2018).

A good example of this type of non-compliance was observed across 305-1 (Scope 1), 305-2 (Scope 2), and 305-3 (Scope 3) disclosures, where the reporting organisation should share information on the base year for emissions, i.e. the "historical datum […] against which a measurement is tracked over time" (GRI, 2018, p. 18). Specifically, the disclosure component requires the organisation to report the rationale for choosing the base year, the emissions in the base year, and the context for any significant changes in emissions that triggered recalculations of base year emissions. While most of the observed disclosures complied with reporting the base year emissions and reasons for possible recalculations, justifying the choice of selecting a certain base year was

generally not reported. In this regard, some airlines provided historical emissions data spanning a decade, allowing readers to observe longer-term trends in their negative emissions, while others only presented emissions from the previous reporting period. As a result, comparing data over time and across companies within the same industry becomes challenging (see Talbot and Boiral, 2018). While there may be alternative reasons for companies not providing a rationale for their chosen base year, reporting only a marginal increase in emissions compared to the previous period can be seen as a strategic impression management tactic, suggesting the rise is modest and temporary rather than indicative of long-term growth. Indeed, the selective use of performance comparisons has been recognised in corporate reporting literature as a tactic firms employ to present their performance in the most favourable light (Merkl-Davies and Brennan, 2007).

Unrepresentative information

The last category comprises unrepresentative information, which represented 11.5% (n=28) of the non-compliant information in the non-compliant disclosures. Non-compliance falling under this category represents occurrences where there seems to be confusion on the manner of reporting certain aspects. In the examined emissions disclosures, a common example of unrepresentative information occurred when emissions data was reported in incorrect units than requested by the GRI. Particularly, the GRI requests Scope 1 (305-1), Scope 2 (305-2), Scope 3 (305-3) emissions and reductions of GHG emissions (305-5) to be reported in metric tons of CO_2 equivalent, which means a quantity of a given mixture from various types of GHG based on their global warming potential (GRI, 2018c). In the case of many airlines, such data was reported in metric tons of CO_2 (carbon dioxide) but not in metric tons of CO_2 equivalent (often shortened as CO_2eq, CO_2e or CO_2-e), which is why the indicated unit is unrepresentative. Even if the proportion of other aviation-induced GHG emissions besides CO_2 could be marginal (see Rypdal, 2000; United Nations, 2005) and therefore not included in the calculations, arguably, the reported data does not adhere to the instructions if it is not reported in the required metrics of CO_2 equivalent.

Besides such technicalities, more worrying examples of unrepresentative information were observed in reports where a company reported aspects that did not correspond to the information in the disclosure requirement. For instance, Finnair's reporting under Disclosure 305-4 included unrepresentative information by reporting on fuel efficiency instead of GHG emissions intensity, as required by the specific disclosure. Essentially,

GHG emissions intensity, which denotes the amount of GHG emissions per unit of activity, output, or any other organisation-specific metric, is intended to provide context for the company's efficiency, including its comparison to other companies (GRI, 2018c). In this case, Finnair's disclosed information is not comparable with other reports, making its benchmarking against other airlines impossible.

5.2.5 Summary of Phase 1 results

The preceding sections of this chapter described the results obtained from the analysis conducted to address Research Question 1: To what extent are emissions disclosed in the global airline industry's sustainability reporting? To address this question, two research objectives guided this inquiry. The first objective was to identify the major reporting frameworks commonly used in the global airline industry's emissions reporting, which also served as a sampling procedure, directing this dissertation to focus on reports claiming compliance with the GRI Standards. To understand the actual extent of emissions disclosure in such reporting, this dissertation argues that accurate measurements must consider potential non-compliance with disclosure requirements. Therefore, to achieve a more balanced picture of the extent of disclosure, the second research objective was to assess the scope of the airlines' GRI-based emissions disclosures and the degree to which these disclosures comply with the GRI Standards.

The analysis first revealed the extent of emissions reporting among airlines conducting corporate reporting in FY19. The sampling procedure mapped 339 airlines, ultimately identifying 125 airlines covered in corporate reports published by 81 distinct companies, some representing multiple airlines. Of the 81 reports, 51 disclosed direct carbon emissions, indicating that approximately 63% of the reporting global passenger airline companies disclosed emissions related to their flight operations. Conversely, 37% of reporting companies deemed emissions reporting irrelevant or chose not to disclose this information for other reasons. Further analysis identified the GRI as the most popular SR framework for emissions reporting, utilised by approximately 55% of the reports, prompting this research to focus on GRI-based reports.

It is worth reiterating that the GRI Standards 2016 edition offers different application levels for companies, and not all observed reports claimed compliance with its Standards. Eight of the 28 reports used the 'GRI-referenced claim', permitting companies to select GRI disclosures without adhering to the full Standards, which is why they were excluded from further analysis. It was noted that companies may choose this option for various reasons, including deliberately linking themselves with the GRI and its

associated credibility without full adherence, rendering its application merely ceremonial. In theory, this option also allows companies to conceal negative information while practising enhancement tactics by selectively presenting favourable information. These tactics could be construed as impression management aimed at shaping the company image while avoiding full transparency.

The final observed sample consisted of 19 airline company reports, as one report failed to indicate which disclosures were made in compliance with the GRI Standards. Of the remaining companies, only one claimed adherence to the GRI at the Comprehensive level, which requires reporting and compliance with all seven GRI emissions disclosures. The rest followed the Core option, allowing them to choose and comply with one or more emissions disclosures. It was noted that while companies may have numerous reasons for choosing this option over the Comprehensive one, the underlying reason may also be impression management, similar to that used with the 'GRI-referenced claim'.

To address the second research objective, the GRI content index pages from the 19 reports were screened to assess the scope of emissions disclosures the airlines claimed to report. These disclosures were then cross-checked against the GRI disclosure requirements to evaluate the degree of compliance.

Regarding the scope of emissions disclosure, many airlines deemed certain disclosures irrelevant or, for other reasons, left them unreported without any explanations despite the industry's emission-intensive nature. This situation is particularly concerning for Disclosure 305-7, which requires the reporting organisation to report NO_x, which may have a warming effect on the climate greater than that of CO_2 emissions alone (Lee *et al.*, 2021). Overall, the number of emissions disclosures varied from one to seven across the observed reports, with an average of 4.47 disclosures covered.

While, on average, more than half of the GRI emissions disclosures were reported, simply ticking the box in the GRI content index does not necessarily mean all aspects of the disclosures are fully covered. Each GRI disclosure includes multiple requirements, and the counter-accounting procedure performed in this research revealed significant non-compliance across the reported disclosures. Overall, the analysis of the 19 observed reports recorded 85 reported emissions disclosures, of which only 12 (or 15.4%) were deemed fully compliant with the disclosure criteria set in the GRI Emissions Standard. In many cases, the disclosures demonstrated only partial compliance. To summarise these findings, the connected dot plot below (Figure 11) illustrates the range of compliance rates observed among airlines for the criteria of each GRI emissions disclosure, along

with the average compliance rates for each disclosure across the airlines that reported them. The size of the dots increases where similar values overlap.

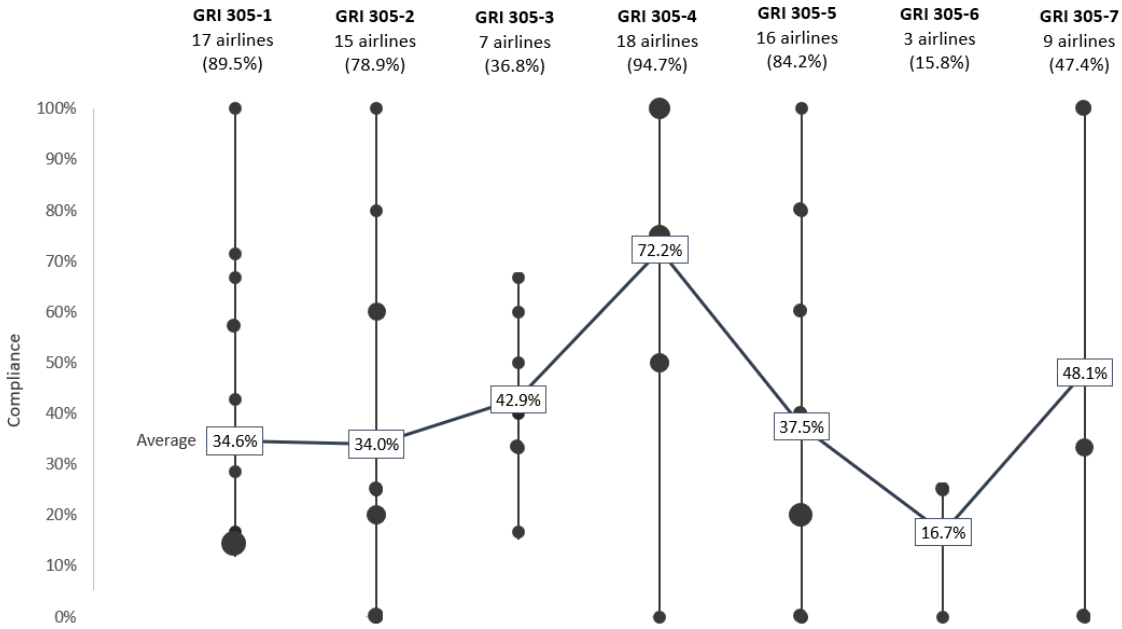

Figure 11 Dot plot showing the range and average compliance rates for each GRI emissions disclosure

Overall, 243 instances of non-compliance were recorded, of which 67.1% were categorised as a complete lack of information, 21.4% as incomplete information, and the remaining 11.5% as unrepresentative information. While other reasons for non-compliance may exist, such as incompetence or negligence in reporting, withholding specific information or presenting information that does not align with reporting standards could be construed as strategic omissions or obfuscation, both of which aim to create a more favourable image of the emissions situation (see Talbot and Boiral, 2018).

All in all, the results of Phase 1 reveal a discrepancy between the emissions disclosures airlines claim to have reported and the extent to which these disclosures are actually fully reported. Non-compliance was observed throughout the dataset, regardless of whether or not external assurance providers had verified the disclosures. This raises concerns not only about impression management, conceptualised as reporting bias involving deliberate concealment, but also about the quality of the disclosures and their external assurance. Chapter 6 of this dissertation will further discuss these findings.

5.3. Results of Phase 2

Results from Phase 1 provided evidence supporting the assertion that the extent of airline emissions reporting should not be judged solely by the number of disclosures made, as the reports often fail to adhere fully to the disclosure standards they claim to follow. Even if parts of the disclosed data in the reports were correct, the communication surrounding these disclosures could still mislead readers, as airlines may engage in defensive impression management to shape stakeholders' perceptions of their emission-intensive operations and performance. In connection with this assertion, the analysis conducted in Phase 2 was designed to address Research Question 2: How is the communication surrounding emissions disclosures constructed to justify the industry's adverse climate impact?

Before reporting the results of Phase 2, a brief summary of the methodological procedures associated with this phase is in order. After all, much of the analysis has occurred simultaneously with writing this part of the chapter, which is inherent in most qualitative research (Braun and Clarke, 2012). Guided by the theory and techniques of neutralisation, Research Question 2 was first operationalised by Research Objective 3 to identify neutralisation techniques used in emissions disclosures to justify airlines' negative climate impact.

The data corpus consisted of the same 19 sustainability reports used in Phase 1, and the chosen data set focused specifically on the sections containing emissions disclosures, the management approach to these issues, and the CEO's statements summarising the report's overall content. The neutralisation techniques were identified and analysed using Braun and Clarke's (2006, 2012) six-phase approach to thematic analysis deductively. Based on this process, the following broader neutralisation techniques were identified:

- Self-proclaimed excellence
- Relativisation of emission reductions
- Claim of net neutral impact
- Compliance with regulatory standards
- Dilution of responsibility
- Promotion of a systemic view
- Economic and technological blackmail

In the remaining chapter, each aforementioned neutralisation technique is described in relation to the observed data set. Following Braun and Clarke (2006, 2012), a more interpretative analysis is conducted on selected extracts that present vivid and compelling examples of each observed neutralisation technique. In this dissertation, this analysis is combined with critical discourse analytical methods to provide a more nuanced interpretation of how linguistic properties are used in employing neutralisation techniques to position the airlines and their actions in a different perspective in the minds of stakeholders. More specifically, Research Objective 4 was operationalised to examine how specific linguistic devices in the text are employed in neutralisation techniques to position airlines in relation to climate impact.

What follows in the analysis presented below should not be regarded as a one-size-fits-all procedure, as there are no universally agreed methods for CDA. However, the analysis is based on the considerations presented in Fairclough's (1992) three-dimensional approach to CDA, specifically in its text-level dimension, which employs Halliday's SFG (Halliday and Matthiessen, 2004) as a reference for analysing the text.

In the text-level dimension, linguistic features related to grammar are analysed, focusing on transitivity, while occasional references are also made to Theme, modality, and intertextuality. According to Fairclough (1992), key concerns in transitivity analysis include the Actor (the 'doer' of the action), the expression of causality, and the attribution of responsibility.

Extract 1 from Turkish Airlines (2020) sustainability report shall be used to illustrate how the above considerations are inscribed, followed by a short interpretation of the text. Participants (human or non-human entities) in the text are underlined. If an Actor is present, it is **bolded**. Verbs are *Italicised,* and their respective process types are indicated (within brackets).

(Extract 1)

> As one of the leading **companies** that *shape* (Material process) sustainability in the aviation industry, **we** will continue to systematically *carry out* (Material process) our sustainability efforts in 2020. (Turkish Airlines, 2020, p. 47)

In the above extract, both clauses utilise Material processes that are 'directed', where the Actor acts upon a Goal (Fairclough, 1992); in other words, the clauses describe the actions that Turkish Airlines takes to achieve sustainability. In the main clause, the text

organiser refers to the airline using ‘we’, which signifies its ability (power) to carry out sustainability efforts (Goal). By beginning the clause with reference to the airline itself, the text organiser also positions the airline as the Theme of the discourse, whereas the Rheme “will continue to systematically carry out our sustainability efforts in 2020” informs the reader about the airline’s actions.

The subordinate clause that precedes the main clause employs the circumstances of ‘Role’ and ‘Location’ (see Halliday and Matthiessen, 2004) to contextualise Turkish Airlines as “one of the leading companies” in “the aviation industry”. The function of this subordinate clause appears to be foregrounding (see Fairclough, 1992; Halliday and Matthiessen, 2004), likely aimed at enhancing the perception of Turkish Airlines’s sustainability efforts by positioning it as one of the leading companies in the realm of sustainability.

The modal verb “will” indicates a median degree of probability (Halliday and Matthiessen, 2004) regarding the achievement of sustainability efforts. According to Yu and Bondi (2019), verbs such as ‘will’ and ‘continue to’ are also considered future-oriented lexical resources often used in CSR discourse to construct commissive statements. In their view, these statements aim to create images of caring companies and thereby increase trustworthiness. They add that such statements are often elusive, as they commit to ‘being good,’ which is difficult to dispute, while avoiding to promise concrete outcomes, which can result in a loss of trustworthiness if expectations are unmet.

On the whole, the above extract provides an example of a statement that may deflect the reader’s attention from the airline’s adverse environmental outcomes by portraying itself as progressive and a leader in that area, even without providing tangible evidence to support this claim. Indeed, the trend in total GHG emissions reported by Turkish Airlines (2020) had, in fact, increased rather than decreased, making the statement of its leadership status more of a self-proclamation and an example of the first broader neutralisation technique, ‘self-proclaimed excellence’, observed in this study.

5.3.1 Self-proclaimed excellence

Talbot and Boiral (2015) describe self-proclaimed excellence as a neutralisation technique through which companies claim to be the best in their field, thereby distancing themselves from competitors by emphasising the positive aspects of their environmental and climate performance. In this dissertation, this neutralisation technique refers to statements where an airline distinguishes itself from others by highlighting its excellence

and leadership. Using this technique, airlines may portray themselves as exemplary within their reference group, thus redirecting attention from broader criticism associated with the airline industry.

This technique was observed across the analysed data set, primarily through passages that proclaimed leadership in responsibility or sustainability without concrete evidence of achievements and claims where airlines claim to own the newest eco-friendly aircraft models. Besides the previously analysed Extract 1, the passage below (Extract 2) from Finnair's sustainability report provides another example of how an airline self-proclaims leadership in responsibility.

(Extract 2)

> Finnair *is* (Relational process) a leading airline in carbon dioxide emissions reporting and reducing emissions. (Finnair, 2020, p. 32)

The above passage is realised as a Relational clause where Finnair (Token) is identified as a "leading airline" (Value), and the remaining part of the clause functions as a circumstance of Role, specifying the field in which Finnair plays its leading role. The passage differs from Extract 1 because the situation is modelled as 'being' rather than 'doing'. Claims constructed using such Relational processes can appear static and, thus, non-negotiable (Rajandran and Taib, 2014), even if they lack tangible evidence supporting the claim. Similar clause constructions were evidenced in other data extracts where airlines claimed their leadership in owning the youngest fleet in certain geographical reference groups. Extracts 3-5 demonstrate how such self-proclamations were made in global, regional and domestic contexts.

(Extract 3)

> We *have* (Relational process) one of the youngest fleets in the world, comprising technologically advanced and fuel-efficient models such as the Airbus A350 and Boeing 787. (Singapore Airlines, 2020, p. 1)

(Extract 4)

> Consisting of 350 aircraft with an average fleet age of 8.3, our fleet *is* (Relational process) one of the youngest fleets across Europe. (Turkish Airlines, 2020, p. 64)

(Extract 5)

> Introduction of eco-friendly, high efficiency aircraft *is* (Relational process) the most effective way to reduce greenhouse gases in the aviation industry. The active utilization of new aircraft *enabled* **Korean Air** *to maintain* (Material process) the lowest fleet age among domestic airlines. (Korean Air, 2020, p. 34)

Extracts 3 and 4 are realised using Relational processes, which may make the claims about owning or being among the youngest in terms of aircraft age appear static. Consequently, these passages may create the impression that each airline's fleet, being among the youngest in their respective reference groups, is a highly definite fact.

The first sentence in Extract 5 is also realised as a Relational process, which describes the introduction of "eco-friendly, high-efficiency aircraft [as] the most effective way to reduce greenhouse gases" in a static manner. Constructing the sentence in such a way without expressing whose view it is makes the statement sound more like a generally accepted view. The sentence that follows is constructed using a Material process in turn. While Korean Air here is positioned as the Actor that maintains the lowest fleet age (Goal) among domestic airlines, the sentence also contains a third indirectly involved participant. More specifically, "[t]he active utilization of new aircraft" takes the role of Initiator in the sentence that enables the process of Korean Air to maintain the lowest fleet age. Considering the two sentences together, the passage construes the meaning that eco-friendly aircraft is the best way to reduce GHGs, and by maintaining the youngest fleet, Korean Air can claim it is doing the best possible. Using the neutralisation technique of self-proclaimed excellence in this way may serve as a justification for companies not doing more (Chassé *et al.*, 2017).

5.3.2 Relativisation of emission reductions

The second neutralisation technique observed in this dissertation is referred to as the relativisation of emissions reduction. Consistent with Talbot and Barbat (2020), relativising negative information does not necessarily deny the company's performance in certain areas but seeks to contextualise it over time and within a particular environment by considering other measures or elements. The observed relativisation in this study's data extracts was mainly deemed to redirect the reader's attention from the airline's increased absolute emissions, which manifested in three different yet non-mutually exclusive ways.

First, the reports highlighted fuel efficiency gains, often equating these gains with saved or avoided emissions. Such a presentation frames the information as emission

reductions without acknowledging the company's increased absolute emissions. Second, the reports framed their emissions reductions or targets in relative terms (e.g., emissions per unit of activity) rather than in absolute terms, which had actually grown. While such efficiency gains or relative progress could be seen as positive developments, highlighting these examples as emissions reductions to convince readers of the company's sustainability can misdirect attention from the overall growth in emissions caused by the expansion in flight operations, thus making its development unsustainable. Third, the reports used favourable or distant base years for performance comparisons, potentially misleading readers about the airline's true progress in reducing their absolute emissions.

The following detailed analyses demonstrate how reported emission reductions are relativised and how linguistic devices may reinforce the perceived significance of these reductions, potentially misleading the reader's understanding of the negative trend in absolute emissions. Extract 6 below illustrates how emission reductions are relativised by emphasising avoided emissions from fuel efficiency, thereby presenting the company as having reduced emissions, even though its total emissions have actually increased.

(Extract 6)

> Throughout the year, 195,500 tons of jet fuels *were saved* (Material process), which *equals to* (Relational process) reducing about 610,000 tons of carbon emissions. (China Eastern, 2020, p. 5)

The above extract is constructed using a Material process in the first clause and a Relational process in the second clause. The first clause is constructed as 'agentless passive' (i.e. the 'doer' is not indicated), which can be common in official reports (McArthur, 2002). While the Actor here is not explicitly mentioned, the broader context clearly identifies it as China Eastern. By omitting the Actor, the clause shifts the reader's focus to the result (Goal) of 195,500 tons of jet fuel saved. The Relational clause, in turn, is a specific type known as a 'thematic equative', where the Theme equals Rheme (Halliday and Matthiessen, 2004). In this construction, "which" (Token) serves as the Theme, referring back to "195,500 tons of jet fuels saved" and is equated to "reducing about 610,000 tons of carbon emissions" (Value). Using this structure, the passage aims to quantify the positive environmental impact of the saved fuel, possibly to emphasise the significance of the airline's achievement. While the fuel savings and their corresponding emissions reductions resulting from the airline's fuel-saving initiatives are likely accurate, this kind of framing of reductions, emphasised through the thematic

equative, can misdirect some readers. Highlighting reductions in this way may redirect the reader's attention away from the airline's total fuel consumption and CO_2 emissions, which, in the case of China Eastern (2020), actually increased during the reporting period by 549,200 tons of aviation fuel consumed and 1,681,732.92 tons of CO_2 emitted.

The analysis of the following extracts provides further examples of how reported emissions reductions may divert attention from the broader negative trend in absolute emissions by emphasising improvements per unit of activity or contextualising reductions within specific time periods.

(Extract 7)

> As a result and thanks to the joint work of each airline that belongs to the Holding company, **we** have *contributed to reduce* emissions. Since 2014, **we** *have reduced* the Jet A1 fuel consumption indicator to transport 100 passengers per kilometer by an average of 1.6%. (Avianca, 2020, p. 386)

The first subordinate clause in Extract 7 contains circumstances of Cause ("[a]s a result" and "thanks to") that introduce the reason for the emissions reductions. These phrases attribute the emissions reductions to the efforts of the airline group, which is represented as the Actor in the succeeding Material clauses performing the reductions (the group referred to as 'we'). The circumstances of Extent and Location in the second sentence quantify the reductions and link them to a specific time frame.

While this passage could be construed as reflecting an achievement by the airline group, as it highlights its successful actions and progress (i.e. the actor involved in reducing emissions), it can also be interpreted as employing two forms of relativisation that allow the company to present its performance in a positive light, despite the growth in its absolute emissions. First, the reductions are framed in relative terms, i.e. emissions per 100 passenger kilometres, which allows the company to report a positive development in emissions reductions, even though its absolute emissions actually increased by over 15% from 2015 to 2019 (Avianca, 2020, p. 399). Second, the company has chosen to present these reductions relative to 2014 rather than comparing them to the previous year. This may be a deliberate choice aimed at redirecting the reader's attention from its recent stalled development, given that its "[j]et A1 liter per every 100 passengers per kilometer traveled remained the same compared to its previous year" (Avianca, 2020, p. 395).

The following extracts provide further examples of how emphasising emission reductions relative to certain base years – in this case, within the context of disclosing absolute emissions – can create a positive environmental narrative, potentially misleading readers about the true progress of emissions performance.

(Extract 8)

> Since 2005, **we** *have reduced* absolute GHG emissions by 9% (Delta, 2020, p. 5)

(Extract 9)

> This year **we** *were able to reduce* (Material process) 2.8% of CO2 emissions*. (Aeromexico, 2020, p. 54)

Extracts 8 and 9 are both realised as Material clauses, where the airlines (referred to as we) are portrayed as the 'doers' of positive change. A closer look at the reports shows how highlighting the emission reductions within the specific timeframes may have been selected to serve to showcase a positive environmental narrative. In Extract 8, Delta reports that they have made progress in reducing absolute emissions since 2005. By looking at the available data in the report, one can see that the absolute emissions have, in fact, increased since 2012. Focusing on long-term reductions since 2005 has allowed Delta to frame its emissions performance in a more favourable light despite its rising emissions.

In Extract 9, the modal feature of ability (*were able to*) appears to reinforce the notion that the emission reduction was within the capacity of Aeromexico and that its active effort was required to achieve the 2.8% reduction in CO_2 emissions (Goal). This reduction is further highlighted through visual emphasis in the report using a larger font and bolding the 2.8% figure. Additionally, this reduction is emphasised with a bar chart placed beside the text, comparing the emitted CO_2 in 2018 and 2019. The reported reduction, however, contains an asterisk with crucial information communicated in small print at the bottom of the page, mentioning that the "reduction considers the grounding of our Boeing 737 MAX airplanes" (Aeromexico, 2020, p. 54). In other words, while the emissions reductions are framed as the company's achievement in the text – by using the Material process emphasised by the modal operator – the actual context of this reduction includes the operation drop caused by the grounding of their aircraft, suggesting that the reduction was largely beyond the airline's direct control. Nevertheless, comparing the emissions

against 2018 has allowed Aeromexico to showcase a positive environmental narrative despite the context behind the emission reductions (the grounding of aircraft). Also, using visual emphasis to direct readers' attention to the passage that portrays the airline as achieving a positive outcome while relegating important information to the footnotes arguably manipulates the presentation of disclosure (see also Merkl-Davies and Brennan, 2007; Talbot and Boiral, 2018).

It is worth noting that the emission reduction disclosures presented in the reports by Delta and Aeromexico did not appear to provide any rationale for choosing their base years, which, as previously mentioned in this dissertation, demonstrates non-compliance with the GRI's disclosure requirements. However, selecting the base year may be an intentional tactic to present performance outcomes in the most favourable light (Merkl-Davies and Brennan, 2007), which may be the case for both airlines to convince their stakeholders of the companies' sustainability.

5.3.3 Compliance with regulatory standards

Companies may highlight their exemplary compliance with current or future regulations to assure stakeholders of their integrity, distancing themselves from industry-related environmental scandals and demonstrating their proactive role in addressing such issues (Boiral *et al.*, 2022). While the present research does not identify the airline industry as having been the subject of environmental scandals during or prior to the observed reporting period, many airlines highlighted that their operations met or exceeded environmental requirements set by external regulatory bodies or other authorities. The purpose of using such convincing rhetoric is likely to strengthen organisational legitimacy by proactively deflecting criticism of their ongoing emission-intensive operations, framing the company's efforts as responsible as they align with externally established expectations. The following passage exemplifies such rhetoric:

(Extract 10)

> Compliance with these laws and regulations *is* (Relational process) a starting point for protecting the environment, but regulations *are* (Relational process) minimum requirements for us. Where we can, **we** *ensure* (Material process) that our operations *have* (Relational process) the lowest possible environmental impact. And where regulations do not exist, **we** *operate* (Material process) responsibly by following best practices. (Delta, 2020, p. 19)

This passage uses Relational clauses in its first sentence to define the company's relationship with regulations, where regulations (Token) are identified as the "starting point" and "minimum requirements" (Value). The static nature of these Relational clauses may suggest to the reader that the company's approach to compliance and regulation goes beyond these minimum requirements. To further reinforce this notion, the subsequent sentences employ Material processes to position the company as taking a proactive role in self-regulating its efforts. These Material clauses are marked by circumstances of Contingency. The circumstance "[w]here we can" can be best construed as indicating a Condition[21] that minimising environmental impacts depends on the airline's abilities, i.e., when it is within their power or resources. The circumstance "where regulations do not exist" can be best construed as indicating a Default[22], meaning that the airline's responsible operations following best practices occur by default in the absence of regulations. All in all, the passage constructed in this way using the circumstantials of Contingency may imply that the airline aims to present itself as proactively addressing its environmental impact wherever possible and to reduce stakeholders' perception that further direct pressure from regulations would be necessary because the airline's actions already exceed the regulatory expectations.

Besides claiming compliance with regulations that may impose direct pressure on airlines in their respective jurisdictions, many airlines were observed to make references to frameworks, standards, or goals established by other prominent external authorities. Constantly referring to them may bring credibility to operations that are managed internally and help companies portray themselves as proactive and reliable in their actions (Rajandran and Taib, 2014). One such authority that was frequently referred to in the data extracts was the industry association IATA, like in the following examples:

(Extract 11)

> **The company** *is* (Relational process) committed to the common goal of the aviation industry *to achieve* (Material process) carbon neutral growth from 2020 and *to cut* (Material process) the emissions of its flight operations by half by 2050 from the 2005 level. (Finnair, 2020, p. 9)

[21] "Circumstantials of Condition construe circumstances that have to obtain in order for the process to be actualized; they have the sense of 'if'" (Halliday and Matthiessen, 2004, 271).

[22] "Default circumstantials have the sense of negative consitio – 'if not, unless'" (Halliday and Matthiessen, 2004, 272).

(Extract 12)

> **We** *intend* (Mental process) to be part of a long-term sustainable society and *support* (Material process) the International Air Transport Association (IATA) ambition that it *will be* (Relational process) possible to fly commercially without material climate impact by 2050. (SAS, 2020, p. 131)

In Extract 11, which begins with a Relational process, Finnair (Carrier), implicitly referred to as “the company”, is described as “committed” (Attribute), and the objective of its commitment is defined by the reference to “the common goal of the aviation industry” (circumstance of Purpose). While IATA is not explicitly mentioned in this passage, the broader context from which the extract is taken implies that these common goals are defined by IATA. The remaining embedded clauses are realised using Material processes, where the company is portrayed as the Actor that undertakes the actions “to achieve carbon-neutral growth” and “to cut the emissions of its flight operations”.

Extract 12 differs from the preceding extract in that it begins with a Mental process, where two participants appear: the Senser and the Phenomenon. In this clause, SAS (implied as "We") is the Senser that desires the Phenomenon, which is "to be part of a long-term sustainable society". Using this Mental process may be a strategic choice through which the text organiser emphasises to its audience the airline's aspiration to play an active role in a sustainable future, potentially aimed at aligning the airline’s values with its audience while leaving a more flexible interpretation of their commitment. Be that as it may, in the following coordinated clause realised as a Material process, a direct reference is made to IATA, whose ambition serves as the Goal that SAS, portrayed as the Actor, supports through its actions.

Besides the above-described text-level properties that help position the airlines as proactive actors in acting upon externally established goals, both passages have utilised elements of intertextuality. While the passages may use indirect discourse representation, meaning they may not reproduce the exact words used by IATA, the information is likely traceable to this organisation. Arguably, referring to well-known external expertise can be construed as rhetorical persuasion to enhance the companies' credibility (Higgins and Walker, 2012). While such references allow the companies to frame their sustainability efforts in alignment with externally established industry goals, their use also supports forward-looking rhetoric, possibly aimed at diverting attention away from current harmful environmental impacts towards a more optimistic future. Similar rhetoric is also strongly present in and related to the neutralisation technique

'claim of net neutral impact', discussed next.

5.3.4 Claim of net neutral impact

Boiral (2016) describes the claim of net neutral impact as a neutralisation technique, where a corporate actor suggests that its adverse environmental impacts are or will be largely corrected or balanced. While the corporate actor does not deny its impacts, they are presented as solvable in the long term.

Many of the analysed sustainability reports in the present research also gave the impression that the airlines generally acknowledged their adverse climate impact. However, their statements exuded ongoing environmental responsiveness and optimism for the future by highlighting their incremental fuel efficiency improvements, technological advancements, or other continuous commitments to solving the problem. The possible purpose of such framing is to present a vision of a gradual, positive environmental impact, which may serve to downplay the need for more immediate or transformative changes in the airlines' operating environment. To reinforce this vision, many statements using this neutralisation technique were often observed making references to future years or constructed with other future-oriented verbs, such as 'will' (Yu and Bondi, 2019) or other lexical choices that are recognised as contributing to future meanings in non-financial reports, such as 'aim', 'believe', and 'continue', which connote intention, hope, or planning (Aiezza, 2015).

The below passage (Extract 13) from Air Canada's report provides an example of the use of this neutralisation technique, manifested by highlighting the incremental fuel efficiency improvements:

(Extract 13)

> In 2019, **we** *optimized* (Material process) the duty-free catalogue and the Air Canada enRoute magazine by using lighter paper without compromising the product quality. **This** *resulted in* (Material process) a savings of 553,972 kg of fuel (692,465 L) which *means* (Relational process) that we saved 1,788 tCO2e or the equivalent of 386 passenger cars driven for one year. **We** also *reduced* (Material process) the number of newspapers we carry on flights. **Air Canada** *continues to work on* (Material process) fuel contingency and management programs and *has extended* (Material process) some of these to its regional carriers. (Air Canada, 2020a, p. 74)

The above passage primarily comprises Material processes ("optimized", "resulted in", "reduced", "continues to work on", and "has extended") that attribute these actions and their environmentally positive outcomes to Air Canada. The Themes that initiate each sentence also position Air Canada and its actions at the forefront of the discourse. The Relational process "means" serves to emphasise the significance of the fuel savings by equating them to "1,788 tCO2e or the equivalent of 386 passenger cars driven for one year". Arguably, these savings can be seen as a drop in the ocean when compared to Air Canada's total reported Scope 1 emissions of 13,205,187 tCO2e in 2019 (Air Canada, 2020b), which are not mentioned in conjunction with the passage. These small improvements are nevertheless framed in the last sentence as part of a broader ongoing programme whose purpose is to tackle the problem over the long term, which is implied by the future-oriented lexical choice of "continue".

In line with the previous example, many reports emphasised airlines' emissions reductions by highlighting the positive outcomes of disaggregated initiatives, as permitted by the GRI Standards. This approach can, in some cases, hinder the understanding of the total reductions but also convey the impression that the solution to the emissions problem consists of continuous incremental improvements, which are often driven by fuel efficiency measures. While such initiatives cannot completely solve the emissions problem at present, the reports seemed to construct the impression that this will eventually become possible as technology develops. Extract 14 exemplifies a statement that appeals to such technological optimism.

(Extract 14)

> We strongly *believe* (Mental process) that we *will experience* (Mental process) a major technology shift during the 2030s with the commercialization of several full electric, hybrid or hydrogen aircraft. (SAS, 2020, p. 133)

The above passage is realised using Mental processes, where SAS (implied as “We”) is the Senser in the process of believing that they will experience the Phenomenon of the major technological shift. By employing the Mental process, the airline positions itself as a bystander to the anticipated Phenomenon (technological shift), which it predicts will occur in the future. In other words, the airline is not responsible for the technological shift per se, but its resources for becoming more climate-friendly depend on the pace of this development.

While the above extract situates the prediction of major improvements in a recognisable

timeframe employing circumstance of Location, other statements, such as Extracts 15 and 16, leave the meaning potential more unstable concerning the future.

(Extract 15)

> We *acknowledge* (Mental process) the complexity and urgency of the climate change problem and therefore **we** *aim to tackle* (Material process) it together with our employees at all levels. (Turkish Airlines, 2020, p. 61)

(Extract 16)

> At Avianca, **we** *have invested* (Material process) in the continuous improvement of all the operating processes, as well as the constant search for initiatives that *enable* (Material process) us to face the global challenges related to climate change (Avianca, 2020, p. 386)

Extract 15 consists of two coordinated clauses. The Mental process "acknowledge" indicates cognition of the Phenomenon "the complexity and urgency of the climate change problem," attributed to Turkish Airlines (Senser). Turkish Airlines, implied as "we," is the Theme, setting the point of departure, while the Rheme recognises the problem. The second clause connects this recognition to the proposed action of tackling it (Goal), with the airline positioned as the Actor acting upon this Goal. While the commissive semi-modal "aim to" commits the company to some future action, the future and the actions the company aims to take to tackle the climate change problem remain open to a range of interpretations, reflecting a high degree of flexibility in terms of the exact nature and execution of those actions. Such statements in this research are referred to as commitments without clear action under the broader theme of claiming net neutral impact because they express general intentions without specific, measurable steps or timelines.

Extract 16 also attributes clear agency to the airline by positioning Avianca (implied as "we") as the Actor in the Material process and making it the Theme by beginning the sentence with the company's name. While the present perfect tense of "have invested" indicates past actions, using it together with the phrases "continuous improvement" and "the constant search" implies ongoing and future-oriented efforts rather than completed actions (see Yu and Bondi, 2019). Such statements in this dissertation are referred to as commitments to continuous improvements because they highlight the companies' ongoing efforts to reduce their environmental impact, suggesting again that the focus is

on gradual progress and long-term goals rather than immediate or transformative changes.

What makes Extract 16 also interesting is how it places the Goals of continuous improvements and the constant search for initiatives within a broader context by using the circumstance of Purpose expressed by “global challenges related to climate change.” This contextualisation can be construed as diffusing the airline’s responsibility by highlighting that the issue is global and its impact is a small part of the larger collective problem. Hence, the passage could also be associated with the neutralisation technique of diluting responsibility, which will be discussed next.

5.3.5 Dilution of responsibility

Wodak (1993) argues that rhetorical “strategies of self-justification enable speakers to make normative evaluations of the outgroup and to assign guilt or responsibility to members of that group or to the group as a whole” (p. 8). This type of self-justification can be linked to a neutralisation technique that Boiral (2016) refers to as the dilution of responsibility. According to him, dilution of responsibility occurs when a corporate actor suggests that its responsibilities for adverse impacts are partially beyond its control, as the sum of actions by various actors and circumstances cause them.

The present research found evidence of this technique across passages where airlines were observed diffusing or diluting responsibility across external groups in various ways. In general, this technique framed climate-related responsibilities as collective and complex, involving a range of actors and circumstances beyond the airline's control. In doing so, the emphasis appears to be shifting from corporate responsibility to external actors by sharing responsibility with them. In the analysed data extracts, airlines were observed attributing responsibility for the climate impact to broader collective efforts, including other industries, the aviation industry as a whole, or even the air travellers.

Extracts 17 and 18 are examples of passages that seem to shift the focus of emissions to other industries by making comparative references. While neither of the extracts denies the airlines' responsibility for emissions, using this tactic may be intended to dilute the perceived contribution of the airline industry as an emitter and, thus, the airlines' own responsibility for the climate change issue.

(Extract 17)

> GHG (greenhouse gas) emissions from aviation operations *account for* (Relational process) about 2% of the total generated by human activities, according to the IPCC (Intergovernmental Panel on Climate Change). This percentage *is* (Relational process) low when compared to other industries… (Volaris, 2020, p. 49)

(Extract 18)

> According to the International Energy Agency (IEA), **aviation** *will represent* (Material process) 15% of the increase in global oil demand by 2030, thus *raising* (Material process) the sector's total greenhouse gas emissions. For comparison purposes: Growth projections *are* (Relational process) the same for passenger vehicles. (LATAM Airlines, 2020, p. 77)

Extract 17 presents the aviation industry's emissions in a way that arguably minimises its perceived accountability for emissions. The first relational process, "account for," attributes only a small percentage of anthropogenic emissions to the industry. The subsequent relational process, "is low," reinforces this minimisation by comparing it to other industries using the circumstantial adjunct of Manner (Comparison). The passage also employs intertextuality by referencing the IPCC, thereby drawing on the authority associated with science, which may lend further credibility to its claim about aviation's relatively low emissions and thus shift the focus onto other industries.

Extract 18, in turn, attributes the responsibility for the predicted growth in oil demand and emissions to the aviation industry as a whole (Actor) through the material processes, "will represent" and "raising". However, the subsequent sentence uses a relational process to equate the growth with that of another industry (passenger vehicles). This static comparison arguably shifts some of the focus away from aviation by implying that the growth is not unique to the aviation industry but shared with other industries.

Other extracts provide further evidence of a similar tactic of diluting the responsibility for emissions by shifting the focus from their individual actions to the actions of the wider system, including the aviation industry as a whole, as shown in Extract 19 below.

(Extract 19)

> Our carbon dioxide emissions per revenue ton kilometer *have come down* (Material process) by 27.4% from 2005, but as **we** grow, and **the whole industry**

grows (Material process), the absolute emissions *have been growing* (Material process) as well. (Finnair, 2020, p. 4)

In this passage, “[o]ur carbon dioxide emissions” functions as the Goal in the initial clause, with “per revenue ton kilometre” serving as a Postmodifier, which has been stated to "have come down.” Although the clause is agentless, Finnair is implicitly positioned as the entity responsible for this reduction. However, the following clauses indicate that the airline’s absolute emissions have grown, which has been linked to the growth in air traffic. Interestingly, the responsibility for this growth is attributed to multiple Actors in the process (Finnair + other industry actors). In other words, while the text organiser does not deny that the company’s growth contributes to emissions, it seems to excuse its growth by noting that other industry actors are expanding their air traffic, too, thus diluting its responsibility for them.

The following extract is an example of a narrative that shifts responsibility for emissions to passengers. It is constructed in such a way that the airline can dilute its responsibility for emissions by presenting its carbon offsetting scheme as exemplary and using it as an instrument to shift the responsibility for reducing emissions onto customers.

(Extract 20)

> **Volaris** is (Relational process) the first Mexican airline *to make* (Material process) a product available to its Customers *to offset* (Material process) the environmental footprint *generated* (Material process) by **their trips**. As a consequence, we invite (Verbal process) all of our Customers to purchase this product, so that in turn **we** *can purchase* (Material process) carbon-emission reduction credits with their voluntary in-cash contributions, and thus *offset* (Material process) part of the environmental footprint *caused* (Material process) by their flights. (Volaris, 2020, p. 46)

The first sentence in the above passage starts with a Relational clause that identifies Volaris (Token) as “the first Mexican airline” (Value), which is then followed by embedded Material clauses that provide additional details. The first embedded clause, “to make a product available to its Customers”, positions the customers of Volaris as the Recipients of the product (Goal), with the implied Actor being the airline that enables this product. The second embedded clause, “to offset the environmental footprint generated by their trips”, also implies Volaris as the Actor responsible for the process of offsetting the environmental footprint (Goal). Interestingly, this part of the sentence ultimately assigns

the responsibility for the environmental footprint to the customers, who are positioned as the Actor, or the source of the produced environmental footprint, through the embedded Material clause "generated by their trips".

The second sentence begins with a Verbal process, a secondary type that borders in between Mental and Relational processes (Baker and Ellece, 2011). According to Halliday and Matthiessen (2004), 'saying' needs to be interpreted in a rather broad sense, conveying any symbolic exchange of meaning. In this Verbal clause, Volaris, implied as "we", is the Sayer, and "invite" can be best construed as an act of calling to action that is directed at the customers, positioned as the Receiver of the communication: "to purchase this product" (Verbiage). Arguably, in this sentence, customers are positioned as responsible participants in the offsetting process. In exchange for their participation through purchase, Volaris is again positioned as the Actor in the process of purchasing carbon credits and offsetting the environmental footprint, where the environmental footprint itself is once again attributed to the customers through the embedded Material clause "caused by their flights".

All in all, the above passage seems to construct a narrative where Volaris is positioned as an enabler of positive actions and the Theme of the discourse, while the customers are subtly implicated in the creation of the environmental footprint (implied Actors in the embedded clauses "generated by their trips" and "caused by their flights"). This dual positioning allows the airline to portray itself as proactive in emissions mitigation and, at the same time, as an enabler for customers to be engaged in the mitigation efforts. However, the passage can also be seen as a strategic use of language intended to shift some of the responsibility for the emissions onto the customers, thereby diluting its own responsibility while portraying itself as exemplary.

Shifting the responsibility to customers was greatly present in many of the analysed reports. Extracts 21 and 22 provide two further examples of how this type of dilution of responsibility manifested in different ways in the reports.

(Extract 21)

> We need our customers (Verbal process) to be thoughtful of the weight of their luggage. (Finnair, 2020, p. 20)

(Extract 22)

> From July 2019, **SAS travelers** *have had* (Relational process) the option *to purchase* (Material process) biofuel in connection to their journey in order to further *reduce* (Material process) the climate impact of their air travel. (SAS, 2020)

Extract 21 can be construed as a Verbal process, where Finnair is the Sayer. The process is expressed using the verb need, which has the imparting meaning of requiring, telling or asking (somebody to do) something (see Halliday and Matthiessen, 2004), which, in this case, is the Verbiage "to be thoughtful of the weight of their luggage". Customers can be understood as the Receiver since the process attributes a sense of responsibility to them. Essentially, this positioning helps the text organiser shift part of the responsibility for the emissions to the customers, which is something beyond the control of the airline and, thus, dilutes its responsibility.

In Extract 22, the clause initiating the sentence represents a Relational process, a possessive type where travellers are portrayed as having the opportunity to reduce their individual climate impact. The condition for this is to purchase biofuel, but SAS has no control over the customers' decisions on this matter. Instead, the expression of possession (using the verb "have had") encompasses a notion of the individual traveller's ability to take responsibility. While SAS travellers have this option, they are also positioned as the Actors in the subsequent Material processes responsible for purchasing biofuel (Goal) to reduce their climate impact (Goal). Additionally, the proposition that travellers are able to "reduce the climate impact of their air travel" can also be construed as a presupposition that translates into "travellers contribute to the climate impact" (see Fairclough, 1992). In other words, the air travellers' role in the impact of climate change is presented as a given truth. The purpose here might be to direct the readers' focus on customers' responsibility and moral choices and, consequently, dilute the company's responsibility for climate impact by sharing it with travellers.

While customers are given opportunities to decide whether to compensate for the emissions of air travel, they are ultimately also responsible for the overall level of flying. Airlines, in turn, rely on travellers to continue flying. Possibly in response to this, the analysed reports construct the idea that air transportation is a necessity for maintaining global socio-economic benefits, which relates to the next neutralisation technique: "promotion of a systemic view".

5.3.6 Promotion of a systemic view

In Talbot and Boiral (2015), the promotion of a systemic view is described as a technique used by companies to justify their emissions by emphasising the contributions their products make to society, implying they should not be judged solely by their negative environmental performance but also by their positive economic and social impacts.

In the present dissertation, various airlines' reports were observed to frame their adverse climate impact as part of a larger context in which the benefits of aviation – such as connectivity, cultural exchange, global collaboration, and economic growth – are emphasised. While the reports did not generally deny the ongoing negative climate impact caused by flying, the likely purpose of such rhetoric is to portray the adverse impact as an acceptable consequence of socioeconomic development and to present the airlines and their actions as an integral part of enabling it, thereby rationalising and legitimising the operations. The passage below demonstrates the use of this technique:

(Extract 23)

> Most of our emissions *result from* (Material process) **longer journeys**, where air travel is (Relational process) the only feasible means of transport. We *are aware of* (Mental process) the negative climate and environmental impacts of our operations, and **we** *are working* (Material process) actively to reduce them, as aviation *fulfills* (Relational process) an important function in society, *connecting* (Material process) communities, cultures and people in a time-efficient way. Aviation also *facilitates* (Material process) successful businesses creating welfare in a very export oriented part of the world. (SAS, 2020, p. 29)

Extract 23 begins with a Material clause where "results from" indicates a causal action, with "longer journeys" being positioned as the Actor causing most of the airline's emissions. The following clause uses a Relational process to identify "air travel" (Token) as "the only feasible means of transport" (Value) in these journeys, presenting the statement as a given truth. In other words, the emissions are presented as unavoidable, which could be construed as a self-justification for them per se.

While the following sentence, initiated by a Mental clause, implies the airline is aware of the negative impacts of these flights, the subsequent Material clause seeks to demonstrate the airline's continuous commitment to reducing them (Goal) by positioning the airline as the Actor actively acting upon this Goal. Strikingly, the sentence continues

with another Relational process where aviation (Carrier) is positioned as having “an important function in society” (Attribute), which consists of connecting cultures and people, with the airline positioned as the Actor enabling the connection, as well as facilitating the creation of business welfare in the last sentence.

All in all, the promotion of a systemic view in this passage does not reject the importance of climate impact or the company’s responsibility in this area, but it rationalises it by highlighting the socio-economic benefits, whose attainment in society would be limited without aviation. In other words, the extract seems to postulate the industry’s and the airline’s role as the enablers of positive socio-economic outcomes through which legitimation for negative climate impact is sought. This type of juxtaposition was observed across various other reports, of which three more extracts are analysed below.

(Extract 24)

> We *take* (Mental process) great pride in connecting Canada and the world. In *accepting* (Mental process) that mission, we also *recognize* (Mental process) that we must do our part to minimize our environmental footprint. (Air Canada, 2020a, p. 67)

(Extract 24)

> As **we** *connect* (Material process) people with communities, experiences and one another, we are (Relational process) committed to *doing* (Material process) our part to build a better world. (Delta, 2020, p. 27)

(Extract 26)

> As **the airline** *flying* (Material process) to more countries than any other, with a total of 126 countries and 321 destinations served, **we** not only *create* (Material process) economic value but also *conduct* (Material process) all of our operations with the overarching goals of driving social prosperity, social contribution, and environmental awareness. (Turkish Airlines, 2020, p. 6)

In Extract 24, Air Canada's report uses a Mental process to indicate that the company

recognises its responsibility to minimise its environmental footprint. However, this acknowledgement appears to be part of a narrative that implicitly rationalises the airline's emissions by linking them to its role in connecting Canada and the world, a role in which the company takes pride.

Extract 25 is taken from a section that explains Delta's management approach to climate change. Here, the Relational clause "we are committed" conveys a sense of responsibility for the climate change problem, which is followed by an embedded Material clause, possibly intended to emphasise the airline's active contribution to mitigating the problem. However, the subordinate clause "[a]s we connect people with communities, experiences and one another" seems to serve the purpose of justifying the acknowledged contribution to the problem. The clause uses a Material process to depict Delta as an enabler of social good by connecting people (the Goal) with communities, experiences, and one another (Circumstance of Accompaniment), providing additional entities engaged in the process.

The rationalisation for emissions is less obvious in Extract 26. However, in line with the previous examples, the sentence portrays flying as contributing to socioeconomic benefits. Positioned as the Actor (and the Theme) in the clauses, the passage focuses on Turkish Airlines' role as the enabler of these benefits. Paradoxically, the very extensive flying of the company is also attributed in this sentence to creating environmental awareness, which is arguably an oxymoronic statement.

5.3.7 Economic and technological blackmail

According to Bhatia (2012), self-justification may occur in CSR reports when a company emphasises particular challenges or constraints within which they operate, thereby obtaining legitimacy for their operations. Companies may, for example, argue that further improvements are impossible without technological advancements or that the available technology is not economically viable. Talbot and Boiral (2015) call such a neutralisation technique economic and technological blackmailing, which appeared in the observed reports in the following ways:

(Extract 27)

> For the emissions that **we** *can't eliminate* (Material process) with current technology, **we** *continue to carbon offset* (Material process) for the SAS tickets of EuroBonus members, youth passengers and staff (SAS, 2020, p. 12)

(Extract 28)

> … although the supply of sustainable aviation fuel in commercial scale *is* (Relational process) not yet a reality in the short-term, **the organization** *monitors* (Material process) regulatory and operational advancements related to this issue… (GOL, 2019, p. 59)

The initiating subordinate clause in Extract 27 contains two types of circumstances. The circumstance of Manner, "with current technology", specifies the Means by which the airline's ability to eliminate further emissions is limited. This limitation is expressed through the modal verb "can't", which indicates an inability to perform the Material process of elimination, although the word "current" implies that this constraint may change with future technological advancements. The first portion of this clause, "[f]or the emissions that we can't eliminate", in turn, functions as a circumstance of Cause, representing the Purpose for the airline (Actor) offsetting emissions (Goal) for selected stakeholder groups (Recipients) in the subsequent Material clause.

Overall, Extract 27 suggests that the airline's ability to make further progress in reducing emissions is constrained by technological development. By emphasising its goodwill in offsetting part of its stakeholders' flights, the airline positions itself as proactive in mitigating climate impact with the means currently available while possibly maintaining the idea of flying as a socially accepted norm despite its current climate impact.

Extract 28, in turn, begins with a Relational clause stating, in a static way, that "the supply of sustainable aviation fuel in commercial scale" (Carrier) is "not yet a reality" (Attribute). While the commercial-scale supply of aviation fuel is presented as unviable, similarly to Extract 27, the passage uses lexical resources to modify the meaning. The word "yet" functions as an adverb modifying the process, and the circumstance of Location "in the short-term" expresses a temporal Extent, implying that the constraints associated with achieving a viable commercial-scale supply are likely to change. Notably, the Extent is presented in a relatively indefinite manner, leaving the meaning potential open to multiple interpretations of when it becomes viable. Again, similarly to Extract 27, the subsequent Material clause portrays the airline as proactive in monitoring the advancements on this front, which are linked with its operational environment and regulatory bodies beyond the airline's control.

Overall, while the commercially unviable use of sustainable aviation fuel has been grammatically presented as a given truth and has likely also been the reality in the

situational context of the report, the future-oriented lexical resources contribute to its meaning to become a viable solution. What, in fact, makes both of the above extracts interesting is that they frame the current technological or economically unviable solutions as constraining the industry's possibilities to reduce further emissions while simultaneously portraying them as future solutions. Positioning the airlines as proactive in the mitigation efforts and keeping up with the developments, yet waiting for the technology and infrastructure to become viable, further fosters the view that emission reductions will be achieved eventually with a combination of incremental innovations. The possible purpose of such rhetoric is to manage expectations and reduce potential pressure to implement quicker or more radical mitigation measures.

5.3.8 Summary of Phase 2 results

The previous sections of this chapter presented the findings from the analysis conducted to answer Research Question 2: How is the communication surrounding emissions disclosures constructed to justify the industry's adverse climate impact? Anchored in the theory and techniques of neutralisation, the question was addressed by Research Objective 3, which aimed to identify neutralisation techniques used in emissions disclosures to justify airline's negative climate impact, and by Research Objective 4, which sought to examine how specific linguistic devices in the text are employed in neutralisation techniques to position airlines in relation to climate impact.

Neutralisation techniques were identified and organised following the steps outlined in Braun and Clarke's (2006, 2012) six-phase approach to thematic analysis. This analysis was deductive in that neutralisation techniques found in previous literature were used as a backdrop against which they were identified in the present research. The analysis was combined with critical discourse analytical methods based on Fairclough's (1992) text-level analysis deriving from Halliday's SFG (Halliday and Matthiessen, 2004). This approach aimed to understand how lexico-grammatical devices are used in the realisation of the neutralisation techniques to position the airlines and other stakeholders in relation to the industry's adverse climate impact. The text-level analysis focused on selected extracts that exemplified the observed neutralisation techniques.

In summary, the results focused on seven neutralisation techniques used in the analysed reports: self-proclaimed excellence, relativisation of emission reductions, compliance with regulatory standards, claim of net neutral impact, dilution of responsibility, promotion of a systemic view, and economic and technological blackmail. These techniques are not mutually exclusive and may combine features from other techniques.

While the common thread in all identified techniques aligns with the inherent definition of neutralisation, which, in the organisational context, is understood as the legitimisation of negative impacts (Boiral, 2016), in addition to the self-justification typically associated with defensive impression management, the observed techniques also incorporated elements of self-promotion by presenting the airlines' emissions performance or related optimistic outlooks as positive news. Thus, the neutralisation techniques observed in this dissertation appear to blend features of both defensive and proactive impression management, with some leaning more towards one end and others towards the other, as illustrated in Figure 12. A summary of the analysis follows the figure.

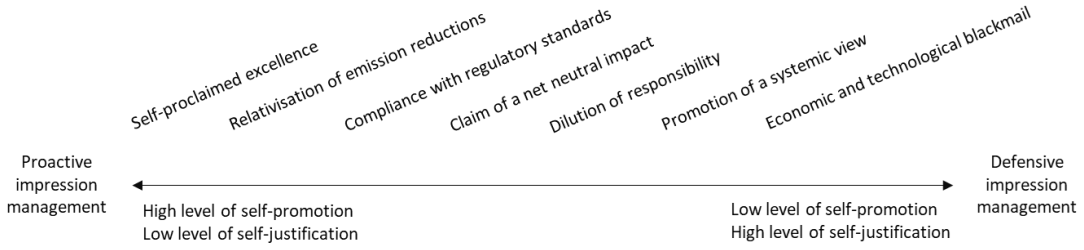

Figure 12 Techniques of neutralisation associated with airlines' contribution to climate impact

Self-proclaimed excellence emerged as one of the most optimistic neutralisation techniques in the analysed data extracts, with airlines asserting themselves as the best or among the best in specific sustainability aspects. While this form of impression management is mainly proactive, focusing on promoting positive outcomes rather than justifying or excusing emissions, it is likely used to defend legitimacy by distancing the airlines from other emitters, thus making them stand out as exemplary. Notably, the claims in the analysed selected extracts are largely constructed using Relational clauses, presenting the claims as given truths, even without providing concrete evidence to support their asserted leadership.

Relativisation of emission reductions reflects another very optimistic technique. The analysed extracts using this technique relied heavily on Material clauses to position airlines as the actors that had reduced their emissions. This relativisation occurred in narratives that emphasised avoided emissions or reductions presented in relative terms (e.g., per unit of activity) rather than in absolute terms or compared emissions against favourable base years, even when the airlines' emissions disclosures indicated an overall increase in emissions. While the technique leans towards proactive impression management by focusing on purportedly successful reductions, it is arguably defensive, too, as it uses selectivity and performance comparisons that obfuscate actual emissions

performance by diverting attention from growth and presenting it in the most favourable light.

Compliance with regulatory standards can also be considered relatively proactive in nature. However, this technique includes a notion of justification for emissions that portrays the airlines as conforming to and committing to externally established regulations and future goals, possibly to defend themselves from criticism proactively. Airlines may utilise intertextuality by referring to external expertise to enhance the credibility of the ideas presented.

Claiming net neutral impact was characterised by the use of future-oriented lexical resources to construct commissive statements, which nevertheless failed to provide concrete, measurable steps or timelines. While such statements tended to acknowledge the industry's current negative climate impact, they implicitly sought to justify it by focusing on the airlines' ongoing environmental responsiveness and the related optimism that technological advancements or other continuous commitments would gradually balance out the negative impact.

The next observed neutralisation technique, dilution of responsibility, also acknowledges the negative climate impact caused by flying but partially excuses it by attributing responsibility for emissions to external groups and circumstances beyond the airlines' control. This attribution was most often realised in the analysed extracts through Material clauses, which positioned groups like the aviation industry or other industries as contributors or collective contributors to the emissions issue. While dilution of responsibility mainly shifted responsibility for emissions to other actors, self-promotion was often interestingly prevalent in statements where airlines were portrayed as enablers of offsetting schemes and air travellers as recipients of such services, thereby shifting responsibility for emissions partially to passengers.

The defensive tone became even more prevalent in the analysed extracts that promoted a systemic view to excuse emissions. While airlines seemed to explicitly or implicitly acknowledge the negative climate impact of flying, this neutralisation technique was realised by portraying the negative environmental impacts of flying as an acceptable consequence of the global socio-economic benefits enabled by air connectivity. The analysed extracts using this technique positioned the airlines as enablers of social good, thereby providing them with an opportunity for self-promotion beyond the environmental dimension.

The last observed neutralisation technique, economic and technological blackmail, was identified as a way for airlines to justify limited emission reductions by implying that the prevailing situation is constrained by the current stage of development in available low-emission technologies, which are not yet sufficiently advanced or economically viable. Arguably, this is a very defensive technique, as it involves self-justification by implying that airlines would take further action if it were feasible for them. Interestingly, through certain lexical choices, the analysed extracts suggested that these technologies will gradually become solutions to the problem while also positioning the airlines as proactive actors in their mitigation efforts.

All in all, the results deriving from Phase 2 reveal that the narration built around airlines' reported emissions disclosures employs several neutralisation techniques, likely aimed at legitimising the companies' adverse climate impact. Their employment involves the strategic use of lexico-grammatical devices to help frame the organisational outcomes or outlooks in a positive light in relation to climate impact and position the airlines as enablers of positive change in this regard. This raises concerns about the intended use of narrative parts of sustainability reports as a legitimisation tool for negative organisational outcomes. The following chapter will further discuss these concerns within the context of this and prior research.

Chapter 6
Conclusions and implications

6.1. Introduction

This dissertation has examined how an emission-intensive industry demonstrates its accountability for climate impact through SR. Given the airline industry's increasing emissions (Kharina, Rutherford and Zeinali, 2016; Kim, Lee and Ahn, 2019) and growing societal concerns about its climate impact (Gössling *et al.*, 2019), coupled with the rising demand for (in)voluntary SR (Van der Lugt, van de Wijs and Petrovics, 2020; Herbohn, Clarkson and Wallis, 2022), the demand for more meaningful reporting in this industry is likely to increase. This made it worthwhile to focus specifically on the airline industry's emissions disclosures. The research was conducted in the context of the passenger airline industry's FY19 sustainability reports that claimed compliance with the GRI Standards. The findings showed that the extent of emissions disclosures rarely aligned with the reporting standards the airlines claimed to follow, and these disclosures were often supplemented with rhetoric to justify climate impact, which could be linked to various impression management strategies.

This final chapter discusses these findings in light of the existing body of knowledge and highlights the contributions made to this domain. The chapter continues with implications for theory and practice and concludes with research limitations and recommendations for future research.

6.2. Conclusions about research propositions

In order to demonstrate accountability in the area of climate impact, airlines can disclose information about their emissions performance in sustainability reports. The credibility of disclosures in these reports has largely been linked to the use of externally established reporting standards, most notably the GRI (KPMG, 2013; Boiral and Henri, 2015), which has become the most widely used framework for SR (Brown, de Jong and Levy, 2009; Roca and Searcy, 2012; KPMG, 2017, 2020) – also within the aviation sector (Karaman, Kilic and Uyar, 2018). The sampling procedure in this dissertation confirmed the framework's popularity in the airline industry. Specifically, it demonstrated that the GRI was the most commonly used framework for disclosing emissions in the passenger airline industry's FY19 reporting.

However, the number of disclosures made and claims of compliance with the GRI should not be used alone to evaluate any company's non-financial performance without scepticism. What is left undisclosed in sustainability reports is equally important, as is the way the meanings of sustainability are communicated. In other words, sustainability claims can be misleading without being incorrect.

Although the prior literature on airline SR has highlighted problems associated with the above-described concerns, including inconsistencies in the SR practice (e.g., Hooper and Greenall, 2005; Mak and Chan, 2007; Mak *et al.*, 2007; Chen and Lin, 2009; Kemp and Vinke, 2012; Rudari and Johnson, 2015) and ambiguities in these reports (e.g., Eccles *et al.*, 2012; Coles, Fenclova and Dinan, 2014; Onkila, Joensuu and Koskela, 2014; Evangelinos *et al.*, 2018; Ringham and Miles, 2018), the prior research on airline SR is largely unexplored as far as these issues raised are concerned, particularly in its provision of emissions reporting. Indeed, the systematic literature review conducted in this dissertation (section 2.3.2) demonstrated that the scope of academic literature on airline-specific SR is very limited and dominated by exploratory investigations and overviews of SR practices, often conducted by either counting the frequency of disclosures or qualitatively describing their content.

Moreover, while several airline-specific studies have used GRI-based reports as their primary data, it was noticed that academia has paid surprisingly little attention to the GRI's actual application in the period leading up to the literature review performed in this dissertation, as also observed by Mayer (2018). In this context, some exploratory studies have mapped the implementation of the GRI (Rudari and Johnson, 2015; see also, e.g., Rüger and Maertens, 2023), and some causal studies have yielded interesting results regarding certain firm- and macro-level factors influencing the existence and extent of GRI-based reporting in the industry (Karaman, Kilic and Uyar, 2018; Kılıç, Uyar and Karaman, 2019). Without undermining their contributions, such research often tends to oversimplify the phenomenon of SR and its associated theories in their conclusions. For instance, Karaman, Kilic and Uyar (2018), grounding their arguments in agency theory, concluded that because most of the aviation sector's "sustainability reports are prepared in compliance with the GRI […] [t]he adoption of a GRI framework might ensure comparability across sustainability reports […] [and] improve an investor's ability to understand the information published within these reports" (p. 383). Similarly, Kılıç, Uyar and Karaman (2019), based on institutional theory, concluded that "if macro institutions work well and establish the sustainability structure, the environment encourages or force[s] aviation firms to operate in a socially responsible manner" (p. 62). The issue with

such conclusions is that they overlook the possibility that firms may give the impression of full disclosure and reporting according to the GRI when, in fact, they are not doing so.

While this dissertation has not deviated from the shared premise of the abovementioned theories, along with the overlapping legitimacy and stakeholder theories – which all essentially suggest that companies disclose non-financial information to maintain corporate legitimacy by meeting stakeholder expectations (see e.g., Reverte, 2009; Gray, Owen and Adams, 2010; Borghei-Ghomi and Leung, 2013) – it has also incorporated the critical accounting perspective, viewing SR as a means of presenting companies in a favourable light (Onkila, Joensuu and Koskela, 2014). Based on the reviewed literature and theory, this dissertation proposed that, in the absence of positive climate-change news, that is, firms without substantial emission reductions are likely to find it difficult to provide honest accounts of their emissions (Merkl-Davies and Brennan, 2011; Herbohn, Clarkson and Wallis, 2022). This may have led the airline reports observed in this dissertation to employ impression management strategies to limit or justify their disclosure of negative organisational outcomes to maintain corporate legitimacy.

Accordingly, the above propositions were considered in this dissertation's two research questions that guided the research to assess the extent of airlines' emissions disclosure and explore how the communication around these disclosures is constructed to justify the industry's adverse climate impact. To this end, this dissertation analysed the use of three impression management strategies – concealment, ceremonial conformity, and neutralisation techniques – to shed light on the tactics airlines may use to limit and justify their negative emissions disclosures in reporting. The following two sections will revisit these analyses and discuss their findings in relation to the two research questions and their related propositions.

6.2.1 Extent of emissions disclosure and strategies used to limit it

Research Question 1 asked: To what extent are emissions disclosed in the global airline industry's sustainability reporting? As noted, this analysis was primarily conducted in the context of GRI-based reports. The decision to focus on airline reports that used the GRI framework in this context was not straightforward. The objective was to narrow the research focus to a single reporting framework, which led to a sampling procedure (section 4.4.1) to identify the major frameworks used in the global passenger airline industry's emissions reporting. This involved mapping FY19 corporate reporting on 339 airlines (297 IATA members and 42 non-members) across official company websites,

the GRI Disclosure Database, and the CDP Responses page, ultimately identifying 125 airlines covered in corporate reports by 81 companies. Among these companies, nearly two-thirds (n=51, approx. 63%) reported direct carbon emissions from their flight operations; the remaining found it irrelevant or did not disclose emissions for other reasons. As such, this finding provides indications of the industry's broader emission disclosure activity in FY19. The GRI was the most popular framework for reporting emissions, used by approximately 55% of the reports. Not all such reports claimed compliance with the GRI Standards but used the 'GRI-referenced' claim, which allows its application without adhering to its standards (GRI, 2018b).

Given the dissertation's proposition that airlines may attempt to convey the impression of full disclosure in adherence to the GRI when they are not doing so, the analysis focused specifically on 19 reports that explicitly claimed to report emissions disclosures in accordance with the GRI Standards. To provide a more balanced picture of the extent of emissions disclosure in these reports, the objective was not only to assess the scope of the airlines' GRI-based emissions disclosures but also the degree to which these disclosures complied with the GRI Standards. This involved screening the GRI index pages in each observed report to compute the number of emissions disclosures the airlines claimed to report and then cross-checking the disclosures' compliance against the GRI Standards using a counter-accounting procedure, operationalised through content analysis (section 4.4.2).

The main findings of this analysis showed that the airline industry's emissions disclosure was limited both in scope and in compliance with GRI standards, regardless of whether the disclosures were externally assured or not. Additionally, the reported disclosures exhibited heterogeneous use of scales and units for measuring the same issues, highlighting problems associated with the lack of industry-specific guidance and the flexibility in applying the GRI. While alternative explanations may exist for deficient reporting, impression management cannot be ruled out, given the industry's emission-intensive nature and limited positive news on this front. This may have led to biased reporting from the airlines, involving deliberate concealment of information and symbolic management through the ceremonial use of the GRI and external assurance to maintain corporate legitimacy.

As far as the scope of emissions disclosure is concerned, the analysis revealed that many airlines either deemed certain disclosures irrelevant or omitted them without any explanation despite the sector's emission-intensive nature. Disclosure 305-7, which

requires reporting NO_x emissions – a pollutant with a significant warming effect (Lee *et al.*, 2021) – was worryingly underreported, appearing in fewer than half of the reports (48.1%). Overall, the number of emissions disclosures ranged from one to seven per report across the sample of 19 reports. On average, just over half of the GRI's seven emissions disclosures were covered per report (M = 4.47, Mdn = 5, SD = 1.54). More importantly, the findings from the counter-accounting study demonstrated that simply ticking the box in the GRI content index does not guarantee that all aspects of the reported disclosures are addressed.

Each of the GRI's seven emissions disclosures contains multiple requirements, and only 12 out of 85 (15.4%) observed emissions disclosures across the 19 reports showed full compliance with them. In contrast, most of the observed disclosures complied with only part of the disclosure components, highlighting the industry's significant non-compliance rates across all disclosures, the average rates ranging from 27.8% to 83.3% per disclosure (see Table 11, p. 144). All in all, more than half of the industry's observed disclosure components (241 out of 418, or 57.65%) showed non-compliance with the requirements set out in the GRI Standards, indicating that the overall quality of the industry's GRI-based emissions disclosure was worryingly deficient.

While similar counter-accounting studies are scarce in prior academic literature, Talbot and Boiral's (2018) study on the energy sector's GRI-based emissions disclosures found significant non-compliance rates, ranging from 42.9% to 95.2% across the years 2009–2013, indicating a similar tendency among energy companies to not comply with emissions disclosure requirements. However, their findings are not directly comparable to those of this dissertation, as their study examined emissions disclosures based on the GRI's G3 edition. Since then, the GRI disclosure requirements have evolved through G4 into the GRI Standards, becoming more extensive and detailed over time (cf. GRI, 2018c; Talbot and Boiral, 2018).

It is important to highlight that non-compliance with the GRI's emissions disclosure requirements was observed across all 19 reports in this dissertation's sample. Talbot and Boiral's (2018) previously mentioned study on the energy sector found that 90.5% to 95.2% of reports from various years contained nonconformities. Similarly, Talbot and Barbat's (2020) research on water disclosures in the mining industry found that 88% of reports contained nonconformities with the GRI. Together, these findings demonstrate that non-compliance with the GRI's topic-specific disclosure requirements has been widespread across different industries.

The similarities with previous studies' findings also extend to the nature of the observed non-compliance, which manifested as a complete lack of information, incomplete information, or unrepresentative information, often concerning the calculation methodology or the sources of emissions. While alternative explanations may exist for such reporting behaviour, Talbot and Boiral (2018) and Talbot and Barbat (2020) suggest that non-compliance of this kind may represent concealment strategies, where companies deliberately fail to communicate certain information or manipulate it to provide a more idealistic picture of their performance (enhancement) or to obscure negative performance (obfuscation) (see also Merkl-Davies and Brennan, 2007). Be that as it may, in agreement with Talbot and Boiral (2018, p. 379), “these limitations of the inventories affect stakeholders’ ability to assess and compare climate data”.

Reporting the same environmental issues using different metrics was one of the common concerns identified in the existing airline SR literature (Chan and Mak, 2005; Mak and Chan, 2007; Eccles *et al.*, 2012). While this dissertation demonstrated that these concerns extend to non-compliance issues with reporting standards, the findings indicate that the previously raised concerns regarding discrepancies in used metrics were also present, especially across GRI 305-4 (GHG emissions intensity) disclosures. It is important to highlight that these discrepancies existed in disclosures that followed the GRI, which as a framework was essentially established to standardise, simplify and globalise SR that was lacking comparability (Brown, de Jong and Levy, 2009). In this respect, the findings support the conclusions made in other research that non-financial reporting has not improved significantly in terms of its comparability despite the increased adoption and experience with the GRI (Hess, 2019). The heterogeneous use of scales and units for measuring the same issues in GRI reporting has been highlighted as a concern in prior literature (Boiral and Henri, 2015) and by socially responsible investment practitioners (Diouf and Boiral, 2017). Scholars of this related literature argue that difficulties in disclosing comparable sustainability performance data may stem from companies’ deliberate interest in limiting stakeholder scrutiny, suggesting impression management, but also from the lack of standardisation of certain indicators (Boiral and Henri, 2015; Diouf and Boiral, 2017).

Indeed, the need for standardised, industry-specific SR for airlines has been emphasised consistently in its related literature (e.g., Chan and Mak, 2005; Eccles *et al.*, 2012; Mayer, 2018). Airlines may struggle to report on sustainability performance due to difficulties determining what is relevant to their industry. The proof is that the GRI is developing a sector programme that provides certain high-impact industries with specific disclosure

standards (GRI, 2022). While passenger airlines are expected to be included in this programme, as of 2025, the industry still awaits detailed GRI disclosure standards. The lack of such guidance was also acknowledged by IATA, which developed the Airline Sustainability Reporting Handbook to identify key reporting topics and their associated disclosures for airlines (IATA, 2020a). While the handbook provides a valuable starting point for industry-specific GRI reporting and was also used as a supplementary point of reference in this dissertation's counter-accounting, two points are worth noting. First, being published in 2020, it was unlikely to have influenced many airlines' FY19 reporting yet, even though some reports were published the same year. Second, like the GRI Standards, the handbook's guidance allows considerable flexibility in the methodology and presentation of emissions data (cf. GRI, 2018c; IATA, 2020), which arguably does not improve the harmonisation of the industry's reporting.

Indeed, the flexibility inherent in the application of the GRI framework has often been criticised for enabling organisations to cherry-pick which elements they adopt from it (Moneva, Archel and Correa, 2006; Van Der Laan, 2009; Milne and Gray, 2013; Ringham and Miles, 2018; Miklosik, Starchon and Hitka, 2021). Some of these concerns relate to the GRI's different application levels, which have been discussed in the context of its earlier G3 and G4 versions (Boiral and Henri, 2015; Rudyanto and Wimelda, 2019). This dissertation extends this discussion to its newer edition, where the GRI transitioned from a guiding framework to the GRI Standards (2016 edition), the first set of global standards for reporting sustainability (Hahnkamper-Vandenbulcke, 2021). This version has allowed organisations to report 'in accordance' with the Standards at the Core or Comprehensive levels, requiring adherence to specific disclosure requirements, or to use the previously mentioned 'GRI-referenced claim', which allows reporting without adhering to the GRI Standards (GRI, 2018b).

While this research focused on examining reports from airlines that claimed their emissions disclosure was prepared in accordance with the GRI Standards, it is worth noting that it also identified reports outside the final sample that used the GRI-referenced claim. Companies may choose this claim for various reasons, including limited resources or expertise, but impression management cannot be ruled out. Using the GRI-referenced claim permits companies to associate with the GRI's credibility without full adherence, allowing its application to be potentially used ceremonially and enabling the concealment of negative information while selectively presenting favourable information.

More importantly, this dissertation has provided evidence that reporting in accordance with the GRI Standards may also be largely ceremonial for several reasons. The proof is that only one of the 19 observed reports claimed adherence to the GRI at the Comprehensive level, which requires reporting and compliance with all seven GRI emissions disclosures, whereas the rest followed the Core option, where the minimum is to report and comply with one emissions disclosure. Similar to the GRI-referenced claim, companies may have followed the Core option over the Comprehensive one for various reasons, among which impression management cannot be ruled out either. As argued by Hasyir (2018), if firms can choose between these two options, many are likely to choose the one requiring less disclosure. Indeed, the Core level has arguably permitted many airlines to report certain information while concealing other details about their performance, thus ceremonially claiming compliance with the GRI Standards without fully committing to transparent and comprehensive reporting. Furthermore, it is important to reiterate that non-compliance with the GRI's emissions disclosure requirements was observed across all 19 reports, raising the question of whether companies deliberately concealed information about their emissions performance while ceremonially claiming to prepare reports in accordance with the GRI Standards.

Finally, although the counter-accounting conducted in this dissertation did not statistically test the debated issue, it aligns with prior critical research (Boiral, 2013; Boiral and Henri, 2015; Talbot and Barbat, 2020; cf. Einwiller and Carroll, 2020), particularly those on emissions disclosures (Talbot and Boiral, 2013, 2018), and extends this discussion to the airline industry context by finding no notable differences between externally assured and non-assured GRI-based disclosures. In general, the assurance process is believed to enhance the credibility of non-financial reporting (Dando and Swift, 2003; Hahn, Reimsbach and Schiemann, 2015; Pitrakkos and Maroun, 2020). This view is also shared by investors (Diouf and Boiral, 2017; Krasodomska, Simnett and Street, 2021), which helps reduce agency costs (Kend, 2015). However, the non-compliance that was observed in this dissertation's counter-accounting aligns with the view of Talbot and Boiral (2018) that external assurance may enhance "the trust of external players in sustainability reports but has no real impact on the quality of the information" (p. 370).

Specifically, the findings of this dissertation provide supporting evidence to prior emissions reporting studies that assurance providers cannot guarantee the accuracy of disclosures (Talbot and Boiral, 2013, 2018), nor do they seem to point out such deficiencies in their assurance statements (Talbot and Boiral, 2018). Literature has proposed several reasons for this, including the lack of assurance providers' skills and

training (Talbot and Boiral, 2013; Heras-Saizarbitoria, Urbieta and Boiral, 2022) and limited professional judgement and scepticism but also the inherent limitations associated with the level of assurance provided (Krasodomska, Simnett and Street, 2021). Most of the emissions disclosures observed in this dissertation that received external assurance were assured at a limited level (see Appendix 10). Compared to a reasonable level of assurance, the limited level carries a higher risk of the assurer issuing incorrect or misleading conclusions about the disclosed information (Comyns, 2018). Nevertheless, this level permits assurance providers to state in their assurance statements that "nothing has come to their attention which indicates that the information is materially misstated" (Uddin and Holtedahl, 2013, p. 51), which is similar to many of the statements enclosed in the observed airlines' sustainability reports. While the obvious advantage of opting for limited assurance is lower costs for the reporting organisation (Krasodomska, Simnett and Street, 2021), Boiral and Henri (2015) argue that the issues associated with assurance mechanisms are also subject to commercial imperatives, which undermine the independence of auditors. Indeed, if viewed through a critical lens, one cannot help but wonder why any company would do business with an assurance provider that would publicly highlight their data as incomplete or non-compliant with the standards they claim to follow. In a similar vein, the limited level of assurance seems to provide a comfortable space for assurance providers to issue statements that satisfy their clients while enhancing their credibility in the eyes of report users.

All in all, regarding the first research question of this dissertation, the findings of the counter-accounting demonstrated that the airline industry's emissions disclosure in FY19 was very limited among those airlines that claimed to report in accordance with the GRI Standards. On average, the airlines reported just over half (4.47) of the seven GRI emissions disclosures. This limited disclosure can be partially attributed to the fact that all but one of the 19 observed reports chose to claim compliance at the GRI's Core level, which allowed these companies to state their compliance without needing to report all seven of the GRI emissions disclosures. Additionally, the extent of the reported disclosure was limited due to the observed nonconformities with the GRI disclosure requirements across all reports, which manifested as a complete lack of information, incomplete information, and unrepresentative information. Specifically, this indicates that the extent of emissions information shared by the 19 airlines was lower than what they claimed to have reported. Finally, the above concerns regarding disclosure quality are not limited to the airlines' emissions reporting per se but extend to the practice of external

assurance, as both externally assured and non-assured disclosures were observed containing notable nonconformities.

While alternative explanations for deficient disclosure may be found from a functionalist point of view, including a lack of rigour and experience in GRI-based emissions reporting (Boiral and Henri, 2015; see also Merkl-Davies and Brennan, 2007), it is reasonable to argue that companies may deliberately limit their emissions disclosure for the same reasons they conduct such reporting in the first place: to safeguard their legitimacy.

From an economics perspective, and based on agency theory, companies share information on their organisational outcomes to mitigate principal-agent problems caused by information asymmetry (Eisenhardt, 1989; Merkl-Davies and Brennan, 2007, 2011). However, negative outcomes can create conflicts of interest between companies and shareholders, making companies prone to exploiting information asymmetry through impression management, conceptualised as reporting bias, which involves concealing negative information (Merkl-Davies and Brennan, 2007, 2011). In light of anthropogenic climate change's consequences and its related global mitigation efforts, shareholders are increasingly interested in reviewing companies' emissions data to assess potential risks in transitioning to a lower-carbon economy (Herbohn, Clarkson and Wallis, 2022). This concern is particularly relevant for airlines, as they face direct financial pressures to reduce emissions (Kim, Lee, and Ahn, 2019). Consequently, airlines are likely to seek alignment with shareholders' information needs by sharing data on their emissions. However, airlines have had few positive outcomes to report in this area, raising questions about possible reporting bias and the use of concealment strategies in particular, which could, at least, partly explain the incomplete and non-compliant disclosure observed in this dissertation. The concealment strategy in question reflects strategic omission, which involves intentionally withholding certain disclosures or their components or deliberately failing to comply with reporting standards (Talbot and Barbat, 2020). Doing so might allow the remaining disclosures to contribute to a more favourable image of the situation (Talbot and Boiral, 2018), thereby helping to preserve corporate legitimacy. While such intentional concealment is and would be difficult to verify, reporting bias is plausible both in theory and practice.

Since shareholders may also perceive outcome announcements as biased - thereby worsening problems of information asymmetry - companies can, in light of agency theory, seek to reduce such problems through the use of externally established reporting standards like the GRI (Karaman, Kilic and Uyar, 2018) or third-party audits (Villiers and

Staden, 2010), whose implementation has also been welcomed by socially responsible investment practitioners (Diouf and Boiral, 2017). However, given the results of this dissertation's counter-accounting – which revealed nonconformities with the GRI Standards across all 19 reports and showed no notable differences in the compliance rates, regardless of whether the reports were externally assured – the use of the GRI and external assurance can be deemed, at least partially, ceremonial. As a strategy, ceremonial conformity is employed to create the impression that such salient practices are in use while their actual implementation is limited, linking this reporting behaviour to impression management, conceptualised as symbolic management (Ashforth and Gibbs, 1990) and more broadly to a sociological perspective on understanding impression management (Merkl-Davies and Brennan, 2011).

In abstract terms, the sociological perspective (encompassing legitimacy, institutional, and stakeholder theories) aligns with agency theory's premise that companies conduct SR to maintain corporate legitimacy but extends the view by recognising reporting as responses to various external pressures beyond just investors and analysts valuing proactive disclosure (Merkl-Davies and Brennan, 2011; see also Hahn, Reimsbach and Schiemann, 2015). In line with this perspective, airlines may disclose emissions, for instance, to address important stakeholders' climate-related concerns (stakeholder theory), conform to societal expectations regarding emissions reductions (legitimacy theory) (Herbohn, Clarkson and Wallis, 2022), and align with external institutional pressures, such as regulations (institutional theory) (Hahn, Reimsbach and Schiemann, 2015). However, non-alignment with these expectations may lead to unfavourable external reactions, prompting airlines to employ symbolic management strategies to make their emissions reporting and performance appear aligned with these expectations (see Ashforth and Gibbs, 1990). Following this logic, investors and credit rating agencies may withdraw capital or issue negative analyses in response to poor emissions disclosure or performance, and other stakeholders, like pressure groups, may also react unfavourably to a firm's negative emissions performance, which may motivate airlines to resort to symbolic management practices (Herbohn, Clarkson and Wallis, 2022).

Beyond ceremonial conformity, which in this research manifested as claims of engagement with the GRI Standards and external assurance despite clear deficiencies in their implementation, this dissertation also observed another type of symbolic management, consisting of verbal strategies aimed at maintaining organisational legitimacy. Exploration of this necessitated analysing the verbal communication

surrounding the emissions disclosures, which relates to the dissertation's second research question and its associated propositions.

6.2.2 Communication surrounding emissions disclosures and strategies to justify impact

Research Question 2 asked: How is the communication surrounding emissions disclosures constructed to justify the industry's adverse climate impact? This question stemmed from the realisation that, even if the reported emissions data were correct, the nature of climate-related disclosure is generally unregulated, allowing firms to manage stakeholder impressions by managing their verbal communication surrounding the disclosure (Herbohn, Clarkson and Wallis, 2022).

Acknowledging that corporate actors are aware that various stakeholder groups could engage unfavourably with the firm in response to negative emissions disclosure (Herbohn, Clarkson and Wallis, 2022) and that the industry has been at the centre of growing climate change concerns (Gössling *et al.*, 2019), this dissertation proposed that airlines would seek to defend their legitimacy by justifying their negative performance in the eyes of stakeholders. Merkl-Davies and Brennan (2011) refer to this form of symbolic management as 'normalising accounts', which, in this dissertation, is interpreted as techniques of neutralisation.

While past research has identified numerous and overlapping techniques of neutralisation in different contexts (Kaptein and van Helvoort, 2019), their use has been little researched in the context of SR (Hahn and Lülfs, 2014; Boiral, 2016; Talbot and Boiral, 2018), and its provision of emissions disclosures (Talbot and Boiral, 2015, 2018). Notably, the nature of these techniques and the manner in which airlines employ them in emissions reporting have remained unexplored before this research. Consequently, in addressing the dissertation's second research question, this research set out to identify neutralisation techniques used in emissions disclosures to justify airlines' negative climate impact.

These techniques were identified and organised following Braun and Clarke's (2006, 2012) six-phase approach to thematic analysis (section 4.5.1), using a deductive approach whereby neutralisation techniques found in previous literature (section 4.4.3) served as a backdrop for their identification across the observed 19 reports. The analysis revealed that airlines' sustainability reports contained various justifications for their emissions, highlighting seven neutralisation techniques that can be linked to certain

techniques observed in prior corporate sustainability literature: self-proclaimed excellence (Talbot and Boiral, 2015; see also Chassé *et al.*, 2017; Boiral *et al.*, 2022), relativisation of emissions disclosures (see Talbot and Barbat, 2020), claim of net neutral impact (Boiral, 2016), compliance with regulatory standard (Boiral *et al.*, 2022), dilution of responsibility (Boiral, 2016; see also Chassé *et al.*, 2017), promotion of a systemic view, and economic and technological blackmail (Talbot and Boiral, 2015).

A few points deserve further discussion in relation to the research question. In brief, the observed techniques appeared to blend elements of both defensive and proactive impression management, containing aspects of self-justification for emissions as well as self-promotion by presenting the airlines' emissions performance or related optimistic outlooks as positive announcements. To convince others about these announcements, the analysed text often employed rhetoric, realised through grammatical configurations that positioned the airlines as enablers of positive change while presenting their exemplary position or justifications for their emission-intensive operations as generally accepted views. Finally, neutralisation techniques observed in this dissertation may not only be about rationalising negative outcomes to demonstrate alignment with external expectations but also about shaping those expectations. Interpreted within the situational context, their broader intent may have been to delay the introduction of additional policy instruments that could impose further financial burdens on an industry already struggling to remain profitable. The remaining parts of this section will explore these considerations in more detail.

First, prior literature has typically associated the use of neutralisation techniques with defensive impression management aimed at justifying companies' negative actions and outcomes (Talbot and Boiral, 2018; Karidio and Talbot, 2020; Talbot and Barbat, 2020). While various justifications for emissions were observed across the analysed reports, many of them employed different degrees of self-promotion by presenting the airlines' emissions performance or related optimistic outlooks as positive announcements, a tactic traditionally associated with proactive impression management (Hooghiemstra, 2000; Bolino *et al.*, 2008). While such rhetoric may not be particularly surprising, given that corporate communications are generally argued to portray businesses in a favourable light (Font, Elgammal and Lamond, 2017), and prior studies have shown how self-promotion has occupied corporate SR (Bhatia, 2012; Domenec, 2012) its use may still serve a defensive purpose, even if that intent may go unnoticed. In this dissertation, self-promotion was most prevalent in passages interpreted using the technique of 'self-proclaimed excellence', but it also appeared alongside other observed techniques,

manifesting as communication that emphasised various capabilities and achievements (see Bolino *et al.*, 2008). Past studies have argued that such communication helps companies divert attention to positive aspects of their operations (Talbot and Boiral, 2015) while implying that their current actions are sufficient – thereby providing seemingly legitimate justifications for not doing more (Chassé *et al.*, 2017). Notably, such assertive communication observed in this research often lacked concrete evidence or was framed in a way that enabled airlines to present their emissions performance in a positive light, even if their overall emissions had increased – as observed in the technique of 'relativisation of emission reductions'.

Secondly, while neutralisation techniques have been described as positioning actors and their actions differently in stakeholders' minds (Hooghiemstra, 2000) and containing linguistic devices used for convincing their audience (Kaptein and van Helvoort, 2019), prior research has remarkably overlooked the critical perspective in understanding how accounting rhetoric is used to persuade organisational audiences about the rationality of organisational actions and outcomes (Merkl-Davies and Brennan, 2011). To provide additional perspective on "what companies say" when they justify their adverse climate impacts, this dissertation also examined "how they say it" by analysing how specific linguistic devices in the text are employed in neutralisation techniques to position airlines in relation to climate impact. Specifically, vivid and compelling extracts of the observed neutralisation techniques were further analysed for their lexico-grammatical meanings in line with Halliday's SFG, focusing on the ideational function of the text through transitivity analysis. This approach allowed for more fine-grained interpretations of how responsibility for certain actions and outcomes was attributed in the observed neutralisation techniques, through various process types that realise the rhetorical (persuasive) style.

The findings of this analysis support prior assertions that, by using language strategically in corporate discourse, companies may portray themselves as sources of positive change while distancing themselves from negative outcomes (Domenec, 2012; Rajandran and Taib, 2014). Specifically, the transitivity analysis demonstrated two types of clause structures dominating the analysed extracts representing neutralisation techniques: Material and Relational. On the one hand, Material clause structures positioned airlines as enablers of environmentally friendly outcomes or socioeconomic benefits, thereby reinforcing self-promotion while invoking self-justification for emissions. On the other hand, similar clause structures were used to assign responsibility for emissions to passengers or other external circumstances. Relational clause structures,

in turn, enabled airlines to express certain matters in a static way, such as their excellence in environmentally friendly practices or inability to further reduce emissions due to factors beyond their control, thus framing them as nonnegotiable or objective accounts of reality. The general conclusion drawn here is that to convince organisational audiences of the acceptability of their actions and outcomes, companies present themselves as acting upon positive outcomes (Material process) while framing justifications for negative impacts as generally accepted views (Relational process) rather than specifying whose opinion is being expressed (as in Mental processes).

Finally, if we adopt a critical perspective that views impression management as a form of retrospective rationality and accounting rhetoric – aimed at creating impressions of rational decision-making and thereby persuading organisational audiences of the legitimacy of companies' actions – then companies are not merely seeking alignment with external expectations, but also socially constructing the very notion of what is perceived as rational (Merkl-Davies and Brennan, 2011). This view is based on the shared understanding in critical quarters that realities and meanings are socially constructed (Scotland, 2012) through language (Berger and Luckmann, 1966; Fairclough, 1992) intended to influence the world around them (Keenoy, Oswick and Grant, 1997). If we accept this view, neutralisation techniques in the corporate context may not only aim to give the impression of companies being aligned with external expectations but also influence these expectations to serve broader purposes, prompting us to consider their underlying intentions within the airline industry.

While narrative disclosures are argued to construct social reality on the micro level, they are also argued to reflect ideas from larger macro-level discourses (Laine, 2005). Therefore, to understand why and for what purpose the observed neutralisation techniques were employed as part of the airlines' emissions reporting, "we must examine not just the strategies used by actors in institutional fields, but also the broader context" (Hardy, Phillips and Hardy, 1999, p. 6; see also Fairclough, 1992; Reed, 2000). The theoretical background presented in this dissertation serves as a backdrop against which the observed neutralisation techniques can be further interpreted, allowing for richer conclusions about their intended use in this industry.

When considering this broader context, the first point to note is that the examined airlines' reports pertain to FY19, just before the COVID-19 pandemic shocked the industry and temporarily reduced its emissions. Therefore, the observed emissions information reflects a period when passenger volumes were such that neither technological

advancements nor fuel-efficiency solutions alone could have provided airlines with the means for significant reductions (see Larsson *et al.*, 2019). The fact is that aeroplanes run on fuel. This causes emissions, and as observed in the literature, the industry's incremental innovations to become more fuel-efficient have been inadequate to level off the rising emissions resulting from the industry's growth rate (Bows, Anderson and Peeters, 2009). The growth, in turn, was largely driven by the rise of the low-cost model following deregulation, which passengers increasingly came to associate with air travel, pressuring many airlines to introduce cheaper airfares and consequently increase passenger volumes to maintain their market share and profitability (Oum and Zhang, 2010).

In other words, airlines seem to have drifted into a vicious cycle where profitability and significant emissions reductions were difficult to attain simultaneously through incremental technological innovations. This likely explains why some airlines' emissions disclosures were surrounded by narratives reflecting the neutralisation technique of 'economic and technological blackmail', emphasising that their possibilities of achieving immediate emission reductions were constrained by the availability of low-emission technologies, which were not yet sufficiently advanced or economically viable. In this regard, the simultaneous release of commissive, forward-looking statements – particularly in passages that employed the neutralisation technique of 'claim of net neutral impact' – may be construed as an intentional strategy to divert attention from current environmental impacts toward more optimistic projections of resolving the emissions problem through continuous incremental improvements.

While corporate actors have been observed diluting their responsibility for environmentally adverse actions with their respective markets (Boiral, 2016; Chassé *et al.*, 2017), it was surprising to see how airlines used this technique also to share the responsibility for emissions with air passengers – those on whom their business survival most depends. However, given that neutralisation techniques have been argued to constitute socially accepted arguments (Boiral, 2016), airlines would likely not employ this technique, or other observed techniques for that matter, if they anticipated broad public discord over their messaging. In fact, the use of neutralisation techniques may reveal something about the prevailing values of society as a whole – namely, what society is willing to accept or compromise on in relation to sustainability. Because social values and norms are constantly evolving (Brown and Deegan, 1998), the use of neutralisation techniques may also indicate how corporate actors respond to shifting expectations, as their underlying aim is to justify, excuse, or otherwise rationalise

behaviours that deviate from prevailing social norms (Fooks *et al.*, 2013). In this context, it should be noted that in the period leading up to the FY19 reporting, a public debate had begun to emerge on whether air travel should be considered a social norm, giving rise to the social phenomenon of flight shaming (Gössling, 2019) and various no-fly campaigns in different parts of the world (CAPA, 2019). As the wider public began considering individual responsibility for climate change, diluting responsibility could be interpreted as a rhetorical strategy to align with these shifting societal values. However, airlines need people to keep flying, which may explain why their reports also employed the neutralisation technique of 'promotion of a systemic view'. Indeed, using this technique could be construed as allowing the airlines to justify the negative impacts of flying by framing the airline industry as essential to maintaining the socioeconomic structures of a globalised world, thereby precluding the idea that emissions could be reduced by reducing air travel.

In this paradox, where the airlines essentially acknowledged causing adverse climate impact while emphasising their role in maintaining socioeconomic structures, they were often portrayed as the 'green choices' of the industry. This image was primarily constructed through the neutralisation technique of 'self-proclaimed excellence', positioning airlines as leaders in specific sustainability aspects, which was further reinforced by the 'relativisation of emission reductions', through which airlines framed their emissions reductions in relative rather than absolute terms, allowing them to portray their performance more favourably. It is important to reiterate that, alongside these neutralisation techniques, airlines often portrayed themselves as enablers of positive or optimistic outcomes across different passages by employing Material processes that positioned them as the Actors carrying out the actions. For instance, when diluting the responsibility for emissions with passengers, some reports portrayed the airlines as the enablers of offsetting programmes or services that allowed their customers to offset emissions or purchase biofuel – even if their potential to reduce climate impact has been argued to be very minimal (Becken and Mackey, 2017; Gössling, 2017; see also Johansson and Gössling, 2014).

One cannot help but wonder whether the persuasive rhetoric, used in conjunction with the observed neutralisation techniques, reflects genuine environmental concern on the part of the airlines or constitutes greenwashing, which "artificially showcases the firm and its supposed concern for the environment and good stakeholder relations" (Boiral, 2013, p. 1043). The answer is probably both. On the one hand, it is hard to believe that no airline would like to become more environmentally sustainable, and many airlines have

invested in technological and operational solutions to reduce emissions. On the other hand, the capacity of airlines to achieve significant sustainability improvements through technological and operational means alone has been limited, which may have led them to supplement many of their emissions disclosures with narrative representations of sustainability efforts that are more symbolic than substantive – and, therefore, may amount to little more than greenwashing (see Pitrakkos and Maroun, 2020).

It may well be that resorting to symbolic management and rhetoric aimed at placing the emission-intensive operations in a perspective that would garner societal approval may have been the only feasible strategy left for airlines to respond to the climate-change controversy surrounding the industry. The other options would be to reduce travel volumes compared to business-as-usual or implement further national or international climate policy instruments (Larsson *et al.*, 2019). Both of these options are arguably unfavourable from the airlines' perspective. Besides needing people to keep flying, airlines are likely reluctant to see further market-based instruments to curb aviation emissions in an industry where many struggle to make a profit. Moreover, the observed neutralisation techniques and their associated rhetoric could also be seen as a subtle, intentional way of appealing to lobbyists and local governments to slow down the process of imposing further financial burdens on the industry (see Talbot and Boiral, 2015; Chassé *et al.*, 2017). After all, prior to the reporting year, the industry had already been subject to broad regional market-based instruments such as the EU ETS and was getting ready to adapt to CORSIA's global offsetting requirements, with various additional regional or country-specific aviation taxes being introduced or discussed. Perhaps in response to this development, some airlines, in assuring their 'compliance with regulatory standards', emphasised their commitment to the industry's own emission reduction targets to demonstrate that the industry alone was taking sufficient action – meaning that no further intervention would be needed.

In light of the above considerations, some general conclusions can be sought to be drawn about what airlines were trying to achieve with their verbal communication surrounding the emissions disclosures. All airlines were identified using neutralisation techniques with the likely purpose of rationalising and legitimising the negative climate impact of their operations. In addition to the self-justification inherent in defensive impression management, the observed neutralisation techniques incorporated elements of self-promotion by presenting the airlines' emissions performance or related optimistic outlooks as positive news. The purpose of this assertive discourse could be to persuade stakeholders about the airlines' ability to do enough under the current circumstances at

the time. In a broader picture, such discourse can be construed as reflecting the prevailing social discourse of weak sustainability, resonating also with neoliberal ideology, where businesses can independently and gradually solve their emission issues without radically changing their business-as-usual operations (Roper, 2012; see also Laine, 2005). However, growing environmental awareness and concerns over flying increasingly challenged these ideas, placing airlines in a difficult position to defend their operations, as addressing the emissions issue appeared to require political interventions with significant economic consequences for the industry. Therefore, the broader purpose of the neutralisation techniques observed in this dissertation could be interpreted as the airlines' way of buying more time to prevent governments from interfering in their operations, such as introducing new market-based instruments to tackle climate change. In support of this underlying intention, the reports positioned the airlines as the enablers of positive change and the negative environmental consequences as generally accepted tradeoffs with other socioeconomic benefits of air travel, reinforcing and perpetuating the neoliberal view that the industry can gradually solve the emissions issue without any radical change or intervention needed.

6.3. Contributions

This dissertation critically assessed the emissions reporting practices of global airlines to enhance our understanding of how an emission-intensive industry demonstrates its accountability for climate impact. The research analysed and evidenced how the reports may have employed certain impression management strategies to defend their legitimacy for emission-intensive operations. Specifically, the findings of the conducted counter-accounting indicated that without a credible monitoring mechanism, demonstrating accountability to emissions reporting aligned with GRI Standards can be partly symbolic, which also applies to externally assured disclosures. Further analysis of the verbal communication surrounding these disclosures indicated that sustainability reports not only functioned as a means to share information on emissions performance but also served as a channel for airlines to influence stakeholders' perceptions of this performance through neutralisation techniques, thereby legitimising and potentially perpetuating the industry's emission problem. Overall, this dissertation and its findings have contributed to the existing body of knowledge in a number of ways, as further discussed below.

The systematic literature review, based on the author's prior work (Zieba and Johansson, 2022) and presented in more detail in this dissertation, represents the most comprehensive synthesis of scholarly research on airline SR. The analysis of this

literature highlighted, among other things, the research gaps also identified by Mayer (2018), who called for studies to examine the airline industry's application of reporting standards, such as the GRI, and the airlines' communication strategies used in reporting to respond to climate change controversies. By examining these issues, this dissertation has addressed these calls.

The sampling procedure in this dissertation, which ultimately led to the examination of emissions disclosures from 19 airlines adhering to the GRI Standards, provided a comprehensive global overview of the industry's engagement in emissions reporting, revealing that 51 out of 81 airlines (about 63%) engaging in FY19 reporting also disclosed their Scope 1 emissions. As such, this research likely contains the broadest global overview of airlines' engagement in emissions reporting (cf. Gössling, Humpe and Sun, 2024), simultaneously indicating that the GRI was the most widely used framework to report emissions.

While the GRI has been associated with increased credibility in reporting (KPMG, 2013; Boiral and Henri, 2015), this research has demonstrated that emissions disclosures reported in accordance with the GRI Standards have partly manifested as a mere box-ticking exercise. In this regard, this dissertation has contributed to the relatively small but growing stream of scholarly research utilising the counter-accounting approach in exposing companies' questionable disclosure practices (Talbot and Boiral, 2018; Talbot and Barbat, 2020; Macellari *et al.*, 2021) and has demonstrated its usefulness in assessing compliance with the GRI Standards in the provision of emissions disclosure. By doing this, this research has responded to scholarly calls to expand the examination of the quality of disclosures to different contexts (Talbot and Boiral, 2018) and, in this regard, it has been the first to use counter-accounting to evaluate the airline industry's reporting. To the author's knowledge, the present research is also the first to use this approach to examine disclosure compliance against the current version of the GRI's (2018) Emissions Standard. Above all, this analysis revealed significant nonconformities with the GRI Standards, which, from a critical perspective, may indicate that it was used, at least to certain extent, as an impression management tool.

In relation to the above point, this research adapted the conceptualisations of impression management by Merkl-Davies and Brennan (2011) to examine the airlines' emissions reporting and, by doing this, evidenced the potential use of certain impression management strategies and thus contributed to its related body of research. Specifically, from an economics perspective, the findings of the conducted counter-accounting were

interpreted as indicating that the airlines may have exploited information asymmetry through reporting bias, manifested as concealment or, more specifically, strategic omission, whereby negative information was deliberately withheld while giving the impression of full disclosure (Talbot and Boiral, 2018; Talbot and Barbat, 2020).

Furthermore, from the sociological perspective, the observed nonconformity with the GRI Standards may be an indication of symbolic management or, more specifically, the use of ceremonial conformity (Ashforth and Gibbs, 1990), where companies claim adherence to the GRI when, in fact, they are not fully doing so. In this regard, this research is among the first (e.g., Talbot and Boiral, 2018; Talbot and Barbat, 2020) to provide evidence that external assurance may serve as a tool to establish ceremonial conformity rather than improve the quality of non-financial disclosure as significant nonconformities with the GRI Standards were observed in externally assured disclosures also.

This dissertation has also joined the work of a few scholars (Boiral, 2016; Talbot and Boiral, 2018; Talbot and Barbat, 2020; Boiral *et al.*, 2022), contributing to research that bridges the gap between impression management and techniques of neutralisation. More specifically, due to their similarities, this dissertation linked neutralisation techniques to other impression management strategies found in Merkl-Davies and Brennan's (2011) conceptualisations of impression management. These are normalising accounts, a symbolic management strategy based on the sociological perspective, and retrospective rationality and accounting rhetoric stemming from the critical perspective. On the one hand, neutralisation techniques were identified as resembling normalising accounts because both are construed as constituting verbal excuses and justifications aimed at legitimising organisational outcomes in the eyes of stakeholders; on the other hand, these techniques were identified as resembling retrospective rationality and accounting rhetoric because both seek to assign rationality to organisational outcomes (cf. Merkl-Davies and Brennan, 2011; Fooks *et al.*, 2013).

Furthermore, while neutralisation techniques have been argued to entail the use of linguistic devices (Kaptein and van Helvoort, 2019), the examination of how language is used to persuade organisational audiences about the rationality of organisational outcomes in SR has been surprisingly underexplored. In this dissertation, accounting rhetoric and the use of linguistic devices in neutralisation techniques were understood as the same, which corporate actors may employ to convince their stakeholders of the rationality of their organisational outcomes. Specifically, to examine the use of neutralisation techniques, this dissertation used thematic analysis in combination with an

examination of lexicogrammatical meanings of the text deriving from critical discourse analytical methods. These techniques provided a useful additional lens for understanding how corporate actors strategically used certain properties of language to persuade audiences about organisational outcomes and how they positioned themselves and others in relation to these events. As such, this dissertation has contributed to the body of sustainability accounting research on neutralisation techniques, which have traditionally relied on content analysis without fine-grained analysis of the use of language (e.g. Boiral, 2016; Talbot and Boiral, 2018; Talbot and Barbat, 2020; Boiral *et al.*, 2022).

All in all, the observed impression management, interpreted in this research as strategies of concealment, ceremonial conformity, and neutralisation techniques, likely have an impact on how stakeholders assess and understand companies' emissions performance. Such considerations also have broader theoretical implications for sustainability accounting research, which are discussed in the section below.

6.4. Theoretical implications

Sustainability accounting research has traditionally been dominated by what some researchers refer to as the business case approach (Brown and Fraser, 2006; Lehman and Kuruppu, 2017), and the functionalist perspective (Boiral and Henri, 2015). While the interpretation of SR and its research within these perspectives may not be identical, they share significant similarities in that they all align with accounting research that deals with positivism. Consequently, research conducted from these dominant perspectives inherently assumes that knowledge of certain business phenomena is an objective entity that business research can discover, quantify, and consequently generalise to larger populations (Lim, 2023). Accordingly, such studies in sustainability accounting research tend to postulate that SR and its indicators can be objectively measured and compared when similar standards are followed and that they can be used as variables to measure sustainable development (Boiral and Henri, 2015).

The findings of this dissertation suggest that such interpretations should be approached with caution, as the disclosures may, in fact, be largely incomplete or otherwise non-compliant with the standards that companies claim to follow. While alternative explanations for these deficiencies may exist, the role of impression management cannot be ruled out. These deficiencies in disclosures and their potential susceptibility to impression management by companies are often overlooked in many quantitative studies. Such oversight can lead to conclusions that oversimplify the phenomenon of SR

and the theories used to explain this behaviour and its consequences. For example, numerous studies based on legitimacy theory have explained that firm-specific factors, such as firm size, influence companies' discretion to practise more standardised reporting due to pressure from broader stakeholder demands for information on diverse topics (Legendre and Coderre, 2013; Martínez-Ferrero, Garcia-Sanchez and Cuadrado-Ballesteros, 2015; Karaman, Kilic and Uyar, 2018). Although not tested in this dissertation, the findings of the present dissertation may imply that larger companies may also be more pressured to use impression management strategies to respond to these demands if the organisational outcomes in certain topics are unfavourable. Similarly, other studies have postulated that certain macro-level factors associated with country-specific characteristics may pressure companies to demonstrate greater commitments to SR (Garcia-Sanchez, Cuadrado-Ballesteros and Frias-Aceituno, 2016; Kılıç, Uyar and Karaman, 2019). Again, although not tested in this dissertation, the institutional pressure might not only increase commitments to SR but also increase companies' pressure to resort to impression management when faced with unfavourable organisational outcomes.

While the results of this dissertation may put the validity of such quantitative studies into question (see also Talbot and Boiral, 2013), the purpose is not to discredit such existing research. The main implication is that, besides practising cautiousness in interpreting the findings of such studies, future research leaning towards the positivist spectrum could benefit from interpreting and reporting their findings through a more critical lens – although such an approach is rarely considered in positivism (see Lim, 2023).

6.5. Practical implications

This research has identified certain concerns in airlines' emissions disclosure practices, which may also have several implications for practitioners and policymakers, as discussed below.

First, while the GRI may be the most widely used and accepted SR framework, it is not without its limitations. Although the GRI updates its framework regularly with various improvements, this ongoing development can, in itself, pose challenges for users seeking to remain compliant with its evolving requirements. Also, one of the issues evidenced in this dissertation, which appears to persist, relates to the flexibility of the GRI in allowing different scales and units to be used for measuring and presenting the same issues. The GRI's flexibility has been argued to be one reason for its global success (Brown, de Jong and Levy, 2009), and in many respects, giving this flexibility is

understandable. After all, the reporting framework is applied across a wide range of industries and countries, and certain measures may be more applicable than others across these contexts. Arguably, more detailed sector-specific guidance is likely to bring a remedy for such shortcomings.

However, beyond this issue, the GRI's disclosure requirements contain other features that may hinder the reader's ability to identify, interpret, and compare certain aspects of a company's non-financial performance, as evidenced during this dissertation's counter-accounting. One such example is that the GRI allows information related to a single disclosure to be spread across multiple pages as long as all page numbers are indicated in the GRI content index (GRI, 2018b). While some observed reports in this research failed to provide the location entirely and were therefore non-compliant with this criterion, others – perhaps intentionally (see Merkl-Davies and Brennan, 2007) – indicated broad page ranges, making it time-consuming to locate the relevant information. Another challenging peculiarity is that some GRI disclosure components (see Table 6, p. 109) require the reporting organisation to disclose specific information only "if available" or "if applicable". While this is fair, given various firm, country, and industry-specific contexts, such component-specific requirements do not oblige organisations to explicitly state whether the information is indeed available or applicable, creating a potential for deliberately concealing certain information while certainly leaving readers uncertain as to why it is missing. Due to the difficulty of externally verifying the availability or applicability of such information, this dissertation also needed to exclude these components from its counter-accounting.

In relation to the above-discussed shortcomings, the counter-accounting exercise also provided an opportunity to identify exemplary reporting practices. For example, Air Canada published its GRI-based emissions data as hard disclosures[23] separately from its narrative sustainability report. Each separate document focused on a specific GRI emissions disclosure and presented the information concisely, following the order set out in the GRI's emissions disclosure requirements. This approach arguably made the information more transparent and accessible. Other airlines could consider adopting a similar reporting format, making it easier for stakeholders to access, interpret, and compare the disclosure. In this regard, it is difficult to understand why the GRI has not required companies to report hard disclosures in this manner – or at the very least encouraged such practice – especially considering its claim that the "Standards are

[23] Hard disclosures refer to the release of information using specific veriable environmental performance indicators (Clarkson *et al.*, 2008)

designed to enhance the global comparability and quality of information on these impacts, thereby enabling greater transparency and accountability of organisations" (GRI, 2018a, p. 3).

Following such a checklist-based approach to reporting would arguably also support more complete disclosure, as it would help companies avoid "accidentally" omitting certain disclosure components without justification. While the industry is still awaiting its sector-specific GRI Standards to provide improved SR guidance for airlines, they can already refer more generally to IATA's (2020) Sustainability Reporting Handbook for support. With regard to emissions disclosures specifically, Appendix 11 – used in this dissertation to guide its counter-accounting – could be developed to serve as a detailed checklist for airlines reporting these issues. Furthermore, building on this appendix and the findings of this dissertation, NGOs and other pressure groups could develop further publicly available counter-accounting on the industry's emissions performance, which could, in turn, create institutional pressure and encourage airlines to improve the quality of their emissions disclosure (see Talbot and Boiral, 2018).

Indeed, the development of counter-accounting in this area would complement the work of external assurance providers, which, based on the observations made in this research, were found to lack rigour. Such observations, in themselves, raise questions about the purpose of external assurance providers if they fail to enhance the credibility of disclosures beyond symbolic presentation. As noted by Talbot and Boiral (2018, p. 380), "[t]he improvement of compliance and quality of information on carbon disclosure requires more rigorous verification practices" – a point that this dissertation's findings also support. To improve assurance, some have suggested that third-party specialists, rather than accounting auditors who may lack subject-matter expertise, could provide more effective verification while monitoring the assurance providers' performance through post-implementation reviews could further enhance the practice (Krasodomska, Simnett and Street, 2021).

Finally, some have suggested increasing the government's role in inspecting the reliability of emissions disclosures, as failures to account for substantial sources of GHG emissions may undermine the credibility of governmental climate commitments (Talbot and Boiral, 2018). Similarly, based on the findings of this dissertation – which also revealed the widespread use of neutralisation techniques – the question arises as to whether narrative disclosure should likewise be subject to regulatory oversight, given

that repeated rationalisation and legitimisation of emissions through socially accepted arguments may perpetuate, rather than resolve, the emissions problem.

Overall, the findings presented in this dissertation have the potential to help various stakeholders take a more critical stance in interpreting and developing the contents of emissions reporting and, more broadly, non-financial reporting as a whole.

6.6. Research limitations

This research may be subject to some limitations, which are discussed in this section. As far as this dissertation's literature review is concerned, it includes one of the most extensive reviews on airline SR, identifying under-researched areas that it has also addressed. However, it should be acknowledged that the review was conducted systematically (see Section 2.3.2) only up to February 2020. Although newer literature in the same area was searched and cited in this dissertation, the review was not continued systematically since this date. As a result, some of the most recent scholarly developments in the airline SR research landscape may not have been fully captured in this dissertation. The systematic review did not include trade publications either, which could have provided further insight into the industry's SR developments, although such literature does not meet the standards of reliable peer-reviewed scholarly work.

The specific research delimitations concerning the empirical part were outlined in the introductory chapter (section 1.5), where the scope of the research was explained to be limited to the airline industry's FY19 reporting and, later, through the sampling procedure, to the GRI-based reporting. Since this sampling procedure is believed to have identified all airlines that claimed adherence to the GRI in their FY19 reporting, it can be argued, however, that the general claims regarding the reporting scope and compliance with the reporting standards provided a fair reflection of the industry's emissions disclosure within the specified context.

Although not a limitation as such, it is worth noting that the counter-accounting approach was a highly demanding and time-consuming process. While the approach itself was relatively straightforward to implement through content analysis (section 4.4.2) and the use of a predefined coding frame, the cross-verification of the disclosures required a thorough understanding of the disclosure criteria outlined in the GRI Emissions Standard, which, in turn, necessitated consulting supplementary guidance from various other documents. Without supplementing the coding frame with detailed notes and instructions (see Appendix 11) based on these sources, the coding would have been impossible to

perform. The coding instructions were also refined following a pilot in which two researchers independently coded a subset of the data and achieved sufficient intercoder agreement. Together, these measures helped to minimise subjectivity in the coding process (Macnamara, 2018).

By contrast, thematic analysis, applied in this dissertation to identify neutralisation techniques in the airlines' emissions disclosures, is a highly qualitative method, making it almost impossible to eliminate subjective elements from the analysis and interpretation (Mruck and Breuer, 2003). It should be noted that thematic analysis encompasses a range of methods, and had this dissertation employed an alternative form with different philosophical and methodological commitments, the analysis results could have been quite different (Finlay, 2021). While Braun and Clarke's (2006, 2012) often cited six-phase framework, offering a systematic yet flexible approach to conducting thematic analysis, was adopted in this research, it does not include similar validity and reliability criteria to those used in the content analysis procedure described above – nor are these concepts recommended to be ”mashed up” into this approach (Braun and Clarke, 2023). Finlay (2021) points out that the epistemological flexibility of thematic analysis is often misunderstood as a lack of rigour, whereas it should be seen as its strength, particularly when the epistemological stance of the researcher is made clear. She further argues that reflexivity is a key criterion for evaluating thematic analysis, which essentially involves reflecting on how the researcher's subjectivity and philosophical positioning may have influenced the research.

Braun and Clarke (2023) also emphasise the importance of being open about philosophical assumptions. These assumptions were discussed in Chapter 3, but for ease of reference, this research can be identified as aligning with the pragmatic paradigm, infused with a critical perspective. Thematic analysis was primarily chosen for pragmatic reasons, as it suits critical studies conducted by a single researcher who wishes to combine it with other methods (Braun and Clarke, 2021), which this research did by integrating critical discourse analytical methods into its final phase. Epistemologically, this research has aimed to minimise subjectivity in parts of research where possible, but it recognises that examining communication involves analysing socially constructed meanings that require interpretation. Ontologically, it has prioritised the imperative of enhancing emissions reporting over philosophical purity by seeking to expose potential contradictions in SR practices regarding accountability, which also reflects the author's axiological stance on how his values have guided the research. In this regard, the research assumed (if not based on conviction) that the verbal

communication under analysis would contain rationalisations and justifications for emissions that can be linked to neutralisation techniques. Although the research primarily focused on identifying neutralisation techniques already established in prior literature – using Braun and Clarke's six-phase approach deductively and systematically, as evidenced in Chapter 4 (section 4.4.2) to enhance its rigour (Finlay, 2021) – the qualitative coding can never be entirely accurate, as it is inherently interpretative practice, and meanings are not fixed within data (Braun and Clarke, 2023). Given these considerations, it must be recognised that another researcher with a different philosophical positioning and background could have produced different results from this analysis.

6.7. Implications for future research

The research limitations outlined in the previous section and the delimitations presented in the first chapter (section 1.5) provide various avenues for future research. In this regard, three areas to focus on are proposed below.

First, this dissertation revealed that the airline industry's emissions disclosure was limited both in scope and in compliance with the GRI Standards. It should be noted that these standards evolve continuously. While the GRI's Topic Standards for emissions disclosures have remained the same since this research and the airline industry continues waiting for its sector-specific disclosure requirements (as of 2025), its Universal Standards that apply to all organisations have changed. One of the biggest changes in this regard is that the Core and Comprehensive options for reporting in accordance with the GRI Standards no longer exist. In its updated version, "[a]n organisation reporting in accordance with the GRI Standards is required to determine its material topics and report all disclosures in this Standard" (GRI, 2022, p. 201). In other words, if an organisation, be it an airline or other company, identifies emissions as a material topic, it can no longer resort to the Core option, as used by the majority of the airlines observed in this research, but must report all seven emissions disclosures. If the organisation does not report the required information, it must explain the reason for it in order to maintain its compliance claim (GRI, 2022). While this change promotes more transparent disclosure, it may bring about two types of negative outcomes. Firstly, as speculated by Talbot and Boiral (2018) in relation to the GRI's transition from the earlier G3 version to the more advanced G4 version, such changes may paradoxically encourage companies to use concealment strategies even more. This speculation is likely to apply to the transition from the GRI Standards 2016 to its 2021 version. Secondly, this development may also increase the type of neutralisation observed in

Talbot and Boiral's (2018) study (not observed in the present research) involving various justifications for not disclosing certain information, which may also count as concealment. Therefore, it would be worthwhile to conduct further research on compliance with disclosures adhering to the GRI's newest version and the possible neutralisation techniques used in this regard.

Second, this dissertation's counter-accounting provided evidence that externally assured and non-assured disclosures exhibited significant nonconformities with the GRI Standards. Although previous critical studies (Boiral, 2013; Boiral and Henri, 2015), including those focused on GHG inventories (Talbot and Boiral, 2013, 2018), have also questioned the quality of external assurance, the impact of assurance on disclosure quality remains largely unexamined statistically (see Einwiller and Carroll, 2020; Talbot and Barbat, 2020). While external assurance is often assumed to enhance stakeholders' confidence in the credibility of emissions disclosures, the question of whether it significantly improves their quality requires further investigation – particularly as emissions reporting and its assurance are expected to become increasingly mandatory in various jurisdictions (Luo and Zhang, 2024). In this regard, positivist or post-positivist research could adopt critical lenses to test whether the propositions made in earlier studies can be generalised through larger samples in the context of airlines and other emission-intensive industries.

Third, although the deficiencies and rhetoric observed in airlines' emissions disclosures can be linked to certain impression management strategies (i.e. concealment, ceremonial conformity, and neutralisation techniques) based on previous literature, and may thus help stakeholders develop a more critical view of non-financial disclosure, they nevertheless offer only a partial perspective on the observed disclosure behaviour. The stakeholder perspective itself is an area highlighted in various SR studies (e.g. Talbot and Boiral, 2015; Talbot and Barbat, 2020) that needs further exploration. How various stakeholders engaged in the production and consumption of non-financial disclosures perceive the reporting and the reported information is a particularly unexplored area in airline SR and offers several further avenues for research to extend the findings of this dissertation. Inspired by Dragomir (2012), it would be interesting to contact the airlines' management representatives to explore their reactions to the critical analyses conducted on their emissions disclosures. How would they explain the nonconformities with the disclosure standards they claimed to be compliant with? Such responses would broaden our understanding of the managers' perspectives and point to potential industry-specific issues regarding disclosure practices or the disclosure standards followed. Alternatively,

the responses could contain even further excuses, justifications, and apologies for the missing or misstated information. Additionally, it would be interesting to explore the managers' reactions to the interpretations made of their verbal communication surrounding the disclosures. Do they make sense to them, and how would they explain it (see Fairclough, 1992)? Would they deny or excuse it somehow, agree to some extent with the interpretations made, or provide signs of alternative explanations such as hubris (managerial optimism and overconfidence about organisational performance) to explain their discourse that in this dissertation was interpreted as fitting the definition of impression management, and neutralisation techniques in particular? Similarly, it would be interesting to explore how external assurance providers would react to this dissertation's counter-accounting results and explain their assurance statements that failed to point out deficiencies in the disclosures analysed. Lastly, another study could draw inspiration from Diouf and Boiral (2017) by exploring the users' perspectives on emissions reporting. Investigating how they perceive the quality and reliability of these disclosures is one aspect to consider. Equally, it would be interesting to explore whether the neutralisation techniques and the language used to construct them manage to convince stakeholders. Aligning with the thoughts of other critical scholars (Merkl-Davies and Brennan, 2011; Denedo and Thomson, 2017), the potential concern here is that if corporate narratives manage to persuade their audiences, they also have the potential to reinforce the status quo.

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Appendices

Appendix 1 Search strings used in the study's systematic literature review

Database	Search String
Scopus	**Title + Abstract + Keywords (n=238)** TITLE-ABS-KEY("airline*" OR "aviation" OR "air transport*" OR "air traffic" OR "airplane" OR "aircraft" OR "air travel" OR "flying") AND TITLE-ABS-KEY("corporate responsibility report*" OR "CR report*" OR "corporate social responsibility report*" OR "CSR report*" OR "corporate sustainability report*" OR "disclosure*" OR "environmental report*" OR "global reporting initiative" OR "GRI" OR "integrated report*" OR "nonfinancial report*" OR "nonfinancial disclosure*" OR "sustainability indicators" OR " sustainability report*" OR "triple bottom line report*")
Web of Science	**Title + Abstract + Keywords (n=114)** TS=("airline*"R "airplane" OR "aircraft" OR "air travel" OR "flying") AND TS=("corporate responsibility report*" OR "CR report*" OR "corporate social responsibility report*" OR "CSR report*" OR "corporate sustainability report*" OR "disclosure*" OR "environmental report*" OR "global reporting initiative" OR "GRI" OR "integrated report*" OR "nonfinancial report*" OR "nonfinancial disclosure*" OR "sustainability indicators" OR " sustainability report*" OR "triple bottom line report*")
EBSCOhost Web	**Title (n=17)** TI=("airline*" OR "aviation" OR "air transport*" OR "air traffic" OR "airplane" OR "aircraft" OR "air travel" OR "flying") AND TI=("corporate responsibility report*" OR "CR report*" OR "corporate social responsibility report*" OR "CSR report*" OR "corporate sustainability report*" OR "disclosure*" OR "environmental report*" OR "global reporting initiative" OR "GRI" OR "integrated report*" OR "nonfinancial report*" OR "nonfinancial disclosure*" OR "sustainability indicators" OR " sustainability report*" OR "triple bottom line report*") **Abstract (n=87)** AB=("airline*" OR "aviation" OR "air transport*" OR "air traffic" OR "airplane" OR "aircraft" OR "air travel" OR "flying") AND AB=("corporate responsibility report*" OR "CR report*" OR "corporate social responsibility report*" OR "CSR report*" OR "corporate sustainability report*" OR "disclosure*" OR "environmental report*" OR "global reporting initiative" OR "GRI" OR "integrated report*" OR "nonfinancial report*" OR "nonfinancial disclosure*" OR "sustainability indicators" OR " sustainability report*" OR "triple bottom line report*") **Keywords (n=25)** SU=("airline*" OR "aviation" OR "air transport*" OR "air traffic" OR "airplane" OR "aircraft" OR "air travel" OR "flying") AND SU=("corporate responsibility report*" OR "CR report*" OR "corporate social responsibility report*" OR "CSR report*" OR "corporate sustainability report*" OR "disclosure*" OR "environmental report*" OR "global reporting initiative" OR "GRI" OR "integrated report*" OR "nonfinancial report*" OR "nonfinancial disclosure*" OR "sustainability indicators" OR " sustainability report*" OR "triple bottom line report*")
ProQuest	**Title + Abstract + Keywords (n=57)** TI,AB,IF("airline*" OR "aviation" OR "air transport*" OR "air traffic" OR "airplane" OR "aircraft" OR "air travel" OR "flying") AND TI,AB,IF("corporate responsibility report*" OR "CR report*" OR "corporate social responsibility report*" OR "CSR report*" OR "corporate sustainability report*" OR "disclosure*" OR "environmental report*" OR "global reporting initiative" OR "GRI" OR "integrated report*" OR "nonfinancial report*" OR "nonfinancial disclosure*" OR "sustainability indicators" OR " sustainability report*" OR "triple bottom line report*")

Author's own

Appendix 2 Publication details and measurements of publication citations of airline SR research contributions.

Author/s	Title	MA[1]	GS[2]	Venue of publication	SJR[3]
Kılıç et al. (2019)	What impacts sustainability reporting in the global aviation industry? An institutional perspective	11	14	Transport Policy	88
Karaman et al. (2018)	Sustainability reporting in the aviation industry: worldwide evidence	19	46	Sustainability Accounting, Management and Policy Journal	24
Ringham and Miles (2018)	The boundary of corporate social responsibility reporting: the case of the airline industry	11	17	Journal of Sustainable Tourism	93
Evangelinos et al. (2018)	Occupational health and safety disclosures in sustainability reports: An overview of trends among corporate leaders	5	12	Corporate Social Responsibility and Environmental Management	66
Taskinsoy and Uyar (2017)	Sustainability reporting in the airline industry: The case of Turkish airlines	0	2	In: Kıymet Çalıyurt, Ü.Y. (Ed.), Sustainability and Management: An International Perspective (book Ch.)	N/A
Vourvachis et al., (2016)	CSR disclosure in response to major airline accidents: a legitimacy-based exploration	57	56	Sustainability Accounting, Management and Policy Journal	24
Kuo et al. (2016)	Motivations and barriers for corporate social responsibility reporting: Evidence from the airline industry	24	49	Journal of Air Transport Management	67
Rudari and Johnson (2015)	Sustainability Reporting Practices of Group III U S . Air Carriers	2	2	International Journal of Aviation, Aeronautics, and Aerospace	7
Koskela (2014)	Occupational health and safety in corporate social responsibility reports	70	74	Safety Science	100
Coles et al. (2014)	Corporate social responsibility reporting among European low-fares airlines: challenges for the examination and development of sustainable mobilities	21	38	Journal of Sustainable Tourism	93
Onkila et al. (2014)	Implications of managerial framing of stakeholders in environmental reports	6	15	Social and Environmental Accountability Journal	15
Paek and Chathoth (2013)	Multiple Levels of Ethics Management: A Case of Airline and Hotel Firms	2	7	Tourism Planning & Development	27

Author's own; adapted from Zeiba and Johansson (2022, pp. 16-17)
Citation details were retrieved on Apr. 07 2021: [1] No. of citations retrieved from Microsoft Academic; [2] No. of citations retrieved from Google Scholar; [3] H-inex retrieved from Scientific Journal Rankings – SCImago

Appendix 3 Thematical areas of journals included in the systematic review of airline SR research publications.

Journal name	*No* of articles	Journal subject area
Safety Science	1	Engineering; Medicine; Social Sciences
Journal of Sustainable Tourism	4	Business, Management and Accounting; Social Sciences
Transportation Research Part D: Transport and Environment	1	Engineering; Environmental Science; Social Sciences
Transport Policy	1	Social Sciences
Journal of Air Transport Management	1	Business, Management and Accounting; Environmental Science; Social Sciences
Corporate Social Responsibility and Environmental Management	1	Business, Management and Accounting; Environmental Science; Social Sciences
Benchmarking	1	Business, Management and Accounting
International Journal of Tourism Research	1	Business, Management and Accounting; Environmental Science; Social Sciences
IEEE Transactions on Professional Communication	1	Business, Management and Accounting; Engineering
Asia Pacific Journal of Tourism Research	1	Business, Management and Accounting; Social Sciences
Tourism Planning & Development	1	Business, Management and Accounting; Social Sciences
Sustainability Accounting, Management and Policy Journal	2	Business, Management and Accounting; Energy
Social and Environmental Accountability Journal	1	Business, Management and Accounting
International Journal of Aviation, Aeronautics, and Aerospace	1	Engineering
Journal of Applied Corporate Finance	1	unavailable
South Asian Journal of Global Business Research	1	unavailable

Author's own adapted from Zieba and Johansson (2022, p. 8)
* Data retrieved from SJR on Apr. 07 2021

Appendix 4 Groupings of keywords appearing in the reviewed airline SR research publications.

Keyword group	Occurrence	Keywords appearing in the review bibliography
Sustainability reporting	18	Annual reports; Barriers to reporting; Corporate social responsibility reporting; CSR reporting; Disclosure; Environmental policy statement; Global reporting initiative; Global reporting initiative (GRI); GRI; GRI application level; Reporting; Sustainability report; Sustainability Reporting; Voluntary disclosure
Corporate Governance & CSR	15	Corporate governance; Corporate Social Responsibility; CSR; Environmental Management; Environmental management system; Governance Social; Occupational health; Occupational health and safety; Social responsibility of business
Aviation	12	Air Travel; Aircraft industry; Airline; Airline industry; Airlines; Aviation; Aviation industry; European Airlines; Low-fare airlines; Travel; Turkish Airlines
Performance Management & Strategic Management	12	Benchmarking; Brand Awareness; Business finance; Financial performance; Fuel Efficiency; Performance; Quality indicators; Stakeholder analysis; Strategic Management
Research methods	5	Case study; Content analysis; Genre analysis (GA)
Sustainability	4	Environmental; Sustainability; Sustainable development
Geographic	3	Asia; Asia Pacific; United Kingdom
Other	6	Industries & society; Interdiscursivity; Motivations; Solid waste; Target readers (consumers); Web sites

Author's own, adapted from Zieba and Johansson (2022, p. 8)

Appendix 5 Industry and geographical context of each reviewed publication.

Bibliography	Context	Geographical distribution	
Hooper and Greenall (2005)	Airline(s)	Global	
Mak et al. (2007)	Airline(s)	Global	Asia, Europe
Cowper-Smith and de Grosbois (2011)	Airline(s)	Global	
Paek and Chathoth (2013)	Multi industry	Global	
Kuo et al. (2016)	Airline(s)	Global	Asia, Europe, N.Am. Africa
Ringham and Miles (2018)	Airline(s)	Global	
Karaman et al. (2018)	Aviation	Global	Africa, Asia, Europe, Lat.Am & Caribbean, N.Am. Oceania
Evangelinos et al. (2018)	Multi industry	Global	
Kılıç et al. (2019)	Aviation	Global	Africa, Asia, Europe, Lat.Am & Caribbean, N.Am. Oceania
Chan and Mak (2005)	Airline(s)	Regional	Europe
Mak and Chan (2006)	Airline(s)	Regional	Asia Pacific
Chen, F.-Y.; Lin, Y.-S.	Airline(s)	Regional	Asia
Coles et al. (2014)	Airline(s)	Regional	Europe
Mak and Chan (2007)	Airline(s)	Single-country	Japan
Eccles et al. (2012)	Multi industry	Single-country	USA
Kemp and Vinke (2012)	Aviation	Single-country	Pakistan
Mattera et al. (2012)	Multi industry	Single-country	Spain
Koskela (2014)	Multi industry	Single-country	Finland
Onkila et al. (2014)	Multi industry	Single-country	Finland
Rudari and Johnson (2015)	Airline(s)	Single-country	USA
Taskinsoy and Uyar (2017)	Airline(s)	Single-country	Turkey
Bhatia (2012)	Multi industry	Multi-country	Comparison of two countries (USA & China)
Vourvachis et al. (2016)	Airline(s)	Multi-country	Accidents associated with Air France, Scandinavian Airlines (SAS) and Singapore Airlines

Author' own adapted from Zeiba and Johansson (2022, p 9)

Appendix 6 Research designs, approaches and methods found in the reviewed airline sustainability research.

Author(s)	Research Design	Research Approach	Data Source	Data collection method	Data Analysis
Hooper and Greenall (2005)	Exploratory*	Qualitative*	Secondary	Documents	Content analysis
Chan and Mak (2005)	Exploratory	Mixed*	Secondary	Documents	Content analysis*
Mak and Chan (2006)	Descriptive*	Mixed*	Secondary	Documents	Content analysis*
Mak and Chan (2007)	Descriptive*	Mixed*	Secondary	Documents	Content analysis*
Mak et al. (2007)	Descriptive*	Mixed*	Secondary	Documents	Content analysis*
Chen, F.-Y.; Lin, Y.-S. (2009)	Exploratory	Qualitative*	Secondary	Documents	Content analysis*
Cowper-Smith and de Grosbois (2011)	Exploratory	Qualitative	Secondary	Documents	Content analysis
Eccles et al. (2012)	Descriptive*	Quantitative*	Secondary	Documents	Content analysis*
Bhatia (2012)	Exploratory*	Qualitative	Secondary	Documents	Discourse analysis
Kemp and Vinke (2012)	Exploratory*	Qualitative	Secondary	Documents	Content analysis
Mattera et al. (2012)	Causal*	Quantitative	Secondary	Documents	Inferential statistics
Paek and Chathoth (2013)	Descriptive*	Quantitative	Secondary	Documents	Content analysis
Koskela (2014)	Descriptive*	Quantitative	Secondary	Documents	Content analysis
Onkila et al. (2014)	Exploratory*	Mixed	Secondary	Documents	Content analysis
Coles et al. (2014)	Exploratory*	Mixed	Mixed	Documents; Interview	Content analysis; grounded theory
Rudari and Johnson (2015)	Exploratory	Quantitative*	Secondary	Documents	Content analysis*
Kuo et al. (2016)	Causal*	Quantitative	Primary	Questionnaire; confirmatory interviews	Inferential statistics
Vourvachis et al. (2016)	Descriptive*	Quantitative	Secondary	Documents	Content analysis
Taskinsoy and Uyar (2017)	Exploratory*	Qualitative*	Secondary	Documents	Content analysis
Ringham and Miles (2018)	Exploratory	Mixed	Secondary	Documents	Content analysis; inferential statistics
Karaman et al. (2018)	Causal*	Quantitative	Secondary	Documents	Inferential statistics
Evangelinos et al. (2018)	Descriptive*	Quantitative	Secondary	Documents	Content analysis
Kılıç et al. (2019)	Causal*	Quantitative	Secondary	Documents	Inferential statistics

* Design, approach or method is not explicitly stated or clearly described in the text
Author's own adapted from Johansson and Zieba (2022 p.10)

Appendix 7 Summary of the research focus and key findings of the reviewed airline SR research publications

Author(s)	Research focus	Key findings
Hooper and Greenall (2005	Presented findings of an investigation into environmental reporting practices in the airline sector	The information shown in environmental reports did not allow accurate benchmarking. Inconsistencies in the way how indicators were defined and used.
Chan and Mak (2005)	Illustrated the status and progress of environmental reporting in the European airline industry	Eight studied airlines had published environmental reports with some salient features. Inconsistencies were found in the way how airlines reported their data on fuel efficiency and waste indicators.
Mak and Chan (2006)	Investigated the environmental reporting in the Asia-Pacific airline sector	Only five airlines in developed regions had published stand-alone environmental reports. Airlines in more developed countries seemed more environmentally conscious and invested heavily in environmental policies.
Mak et al. (2007)	Mapped the status and progress of environmental reporting of a sample of airlines in Europe and the Asia-Pacific region	Only eight European and five Asia-Pacific airlines had devoted varying degrees of effort to produce stand-alone environmental reports continuously. European reports seemed to be richer in their content.
Mak and Chan (2007)	Examined the content of environmental reporting of three Japan-based airlines	All airlines showed varying degrees of effort in producing reports but could still set an example for airlines in less developed countries. Inconsistent ways to define fuel efficiency made benchmarking problematic.
Chen and Lin (2009)	Presented an exploration of the CSR issues addressed and reported by 12 major Asian airlines	Most airlines demonstrated their commitment to CSR in different ways of reporting. Variation was observed both in content and extent. Inconsistent measurements made the comparison of performance difficult.
Cowper-Smith and de Grosbois (2011)	Aimed at creating a framework, which allows a better comparison of the adoption of CSR initiatives across airlines	Airlines focused more intensely on reporting environmental issues than social or economic dimensions, with emission reduction predominating the content. Inconsistency in reporting practices made comparison difficult.
Bhatia (2012)	Investigated the intended purpose and function of CSR reports from three industries (incl. airlines) in the US and China, and how and to what extent these reports may meet the expectations of the international discourse community	The chosen reports were deemed to be illustrating a type of “generic integrity”, a hybridization, which combines factual reporting with promotional discourse. The analysis revealed three types of “interdiscourses” in CSR reports: 1) the discourse of promotion, 2) goodwill, and 3) self-justification.
Eccles et al. (2012)	Called attention to the issue that materiality should be defined on a sector-specific basis by performing an analysis of how the US-based companies in six different industries communicated their climate change-related disclosures	Companies were found to disclose material information in incomparable ways. Most airline climate change-related disclosures represented boilerplate statements encompassing generic language, with only some being industry-specific.
Kemp and Vinke, (2012)	Investigated the extent to which the Pakistani Aviation industry reported CSR activities on corporate websites and annual reports	The study found Pakistani aviation largely lacking application and disclosure of CSR. No evidence was found of reporting under recognized frameworks. Pakistani aviation reported more on social and economic dimensions than the environment.
Mattera et al. (2012)	Explored the effect of CSR reporting on customer’s perception and awareness of a company’s brand	The findings indicated that association with ISO 26000 and GRI positively impacts the firm’s brand awareness in the service sector.
Paek and Chathoth (2013)	Attempted to suggest a multi-level ethics management model built on existing literature	The study verified five levels in the ethics management model within the Spanish hospitality and tourism context. Compared to hotels, airlines reported more regularly and showed more robust practices in structured compliance such as auditing and higher external recognition of activities.
Koskela (2014)	Analysed occupational health and safety (OH&S) in CSR reports by examining three Finnish companies (inc. 1 airline)	Conversely to previous literature indications, the case companies demonstrated reporting OH&S broadly and in a surprisingly similar manner.

Author's own adapted from Zieba and Johansson (2022, p.16)

Appendix 7 Summary of the research focus and key findings of the reviewed airline SR research publications (continues)

Author(s)	Research focus	Key findings
Onkila et al. (2014)	Aimed at gaining better understanding of the environmental reporting practices, and how managerial framing manifests itself in such reports by examining three Finnish companies (incl. 1 airline)	10 main stakeholder groups were identified in the reports: customers, suppliers and business partners, employees, local community and society, the business sector, authorities, international guidelines, NGOs, external auditors and the media. Five frames were formed for stakeholders: promotion, commitment, demanding, donating and preventing. The most dominant way of framing stakeholders was management-oriented, which manifests itself as "promotion and commitment, through which stakeholders are primarily framed as sources of legitimacy and as ways for companies to demonstrate [their] positive impact on society" (p. 151)
Coles et al. (2014)	Examined CSR practices among European low-fares airlines (LFAs) by analysing airline representatives' views in juxtaposition against reporting texts	The paper demonstrated "that CSR texts produced by LFAs are highly fragmented, lacking in detail and often selective in their coverage based on their intended audiences" (p. 85). Very few LFAs had audited their CSR activities due to a lack of adequate resources.
Rudari and Johnson (2015)	Explored SR practices of US passenger and cargo airlines	The study indicated that the US aviation sector lagged behind other sectors in SR, and that the legacy carriers participated in SR more than national carriers or cargo carriers.
Kuo et al. (2016)	Investigated the factors that motivate airlines to practice CSR reporting, as well as the barriers to reporting from airline managers' perspective	The results indicated that airline representatives believe the government is the most important CSR reports reader, followed by owners and customers. The major motivations for reporting were reputation and brand value. Time was considered being the biggest constraint of reporting.
Vourvachis et al. (2016)	Examined annual report CSR disclosures of three airlines after four accidents to investigate how companies react to legitimacy threats	Airlines after three accidents changed their CSR disclosure to become more positive and allocated more space related to health and safety – "The findings demonstrated the use of annual report as a legitimation tool" (p.26).
Taskinsoy and Uyar (2017)	Looked into sustainability reporting of Turkish Airlines between the years 2002 and 2011	While some sustainability dimensions (incl. economic indicators) were reported every year regularly, other critically important dimensions (incl. environmental indicators, OH&S, charity activities) began to be reported only in recent years' reports.
Ringham and Miles (2018)	Analysed the boundary concept of CSR reporting first from the perspective of CSR reporting guidance providers and then how it has been interpreted in practice by airlines	The paper indicated a "lack of conceptual clarification of boundary both between guidance provisions and within practice." (p .17). The airline sector's overall CSR disclosure was deemed to be weak based on narrow focus and cherry-picked content.
Karaman et al. (2018)	Investigated what affects GRI-based sustainability reporting and its relationships with performance in the aviation industry between 2006 and 2015	The analysis indicated that firm size and leverage are positively associated with sustainability reporting (thus, in line with legitimacy theory) while, contrary to expectations, ownership diffusion was negatively associated, and cash flow per share, growth and profitability did not have significant effects on SR. The authors also concluded that SR does not significantly enhance a firm's performance.
Evangelinos et al., (2018)	Assessed the comprehensiveness of voluntary OH&S disclosures of large business entities across four industries (incl. the airlines)	The study indicated that companies fall short in reporting quantitative and qualitative information beyond the 'conventional' metrics of occupational injury rates. In contrast, companies seemed to seek assurance from externally developed management standards that they subscribe to, support, or adopt.
Kılıç et al. (2019	Tested the link between sustainability performance and SR over the period of 2011 and 2016 to examine whether GRI adoption within aviation is impacted by the governance structure and social and environmental development of their domicile	The authors found that governance quality has a significant positive impact on SR. Socio-environmental performance of a country appeared to influence aviation firms to undertake SR. Also, aviation companies operating in major economies were found to be more likely to issue stand-alone reports. The results lent support to institutional theory.

Author's own adapted from Zieba and Johansson (2022, p.16)

Appendix 8 The number of codes used and data extracts coded per report in the conducted thematic analysis

Name	Codes	References
1.Aegan_2019_sustainable_devel	5	8
10.GOL_sustainability_report_201	3	3
11.Icelandair_Responsibility_Rep	9	14
12.Korean_Air_Sustainability_Rep	7	11
13.LATAM_Airlines_ntegrated_Re	6	10
14.SAS-annual-and-sustainability	13	22
15.Singapore_Airlines_Sustainabil	8	16
16.Thai_Airways_Sustainable_Dev	2	3
17.Turkish_Airlines_2019_Sustain	15	38
18.Volaris-Sustainability-Report-	10	17
19.0.Air_Canada_2019-cs-report-	0	0
19.1.Air_Canada_305_1_2019-cs-r	0	0
19.2.Air_Canda_305_2_2019-cs-re	0	0
19.3.Air_Canada_Scope_3_2019-c	0	0
19.4.Air_Canada_305_4_2019-cs-r	0	0
19.5.Air_Canada_305_5_2019-cs-r	0	0
19.6Air_Canada_Sustainability_Re	8	16
2.Aeromexico_2019_Sustainabilit	3	3
3.Avianca_Annual_Report_2019	5	7
4.Azul_2019_sustainability_report	7	8
5.China_Airlines_Corporate_Susta	6	7
6.China_Eastern_Corporate_social	5	8
7.Delta_Corporate_Responsibility	11	22
8_EVA_Air_Corporate_Social_Res	3	5
9_Finnair-sustainability-report-20	11	16

Image extracted from the author's NVivo working file

Appendix 9 GRI General Disclosures and observed compliance rates for each disclosure

GRI general disclosure	102-47		102-54		102-55		102-56	
	Reported (Yes/No/ Omission)	Compli-ance rate	Reported Yes/No/ Omission	Compli-ance rate	Reported Yes/No/ Omission	Compli-ance rate	Reported Yes/No/ Omission	Compli-ance rate
Korean Air	Yes	100.0%	Yes	100.0%	Yes	50.0%	Yes	100.00%
Singapore Airlines	Yes	100.0%	Yes	100.0%	Yes	100.0%	Yes	100.00%
Thai Airways International	Yes	100.0%	Yes	100.0%	Yes	100.0%	Yes	100.00%
China Airlines	Yes	100.0%	Yes	100.0%	Yes	100.0%	Yes	100.00%
EVA Air	Yes	100.0%	Yes	0.0%	Yes	100.0%	Yes	100.00%
Aegean Airlines	Yes	100.0%	Yes	100.0%	Yes	100.0%	Yes	100.00%
Finnair	Yes	100.0%	Yes	100.0%	Yes	100.0%	Yes	100.00%
Icelandair	Yes	100.0%	Yes	100.0%	Yes	50.0%	Yes	100.00%
SAS	Yes	100.0%	Yes	100.0%	Yes	100.0%	Yes	100.00%
Turkish Airlines	Yes	100.0%	Yes	100.0%	Yes	100.0%	Yes	100.00%
Aeromexico	Yes	100.0%	Yes	100.0%	Yes	100.0%	Yes	100.00%
Air Canada	Yes	100.0%	Yes	100.0%	Yes	100.0%	Yes	100.00%
Avianca	Yes	100.0%	Yes	0.0%	Yes	100.0%	Yes	100.00%
Azul Brazilian Airlines	Yes	100.0%	Yes	0.0%	Yes	100.0%	Yes	100.00%
Delta Air Lines	Yes	100.0%	Yes	100.0%	Yes	50.0%	Yes	100.00%
GOL Linhas Aereas	Yes	100.0%	Yes	100.0%	Yes	100.0%	Yes	0.00%
LATAM Airlines Argentina	Yes	100.0%	Yes	100.0%	Yes	100.0%	Yes	100.00%
Volaris	Yes	100.0%	Yes	0.0%	Yes	100.0%	Yes	100.00%
China Eastern Airlines	Yes	100.0%	Yes	100.0%	Yes	100.0%	Yes	50.00%
Average compliance rate		100.0%		78.9%		92.1%		92.1%

Appendix 10 GRI emissions disclosures, their external verification, and observed compliance rates for each disclosure

GRI emissions disclosure	305-1			305-2			305-3			305-4		
	Reported (Yes/ No/ Om.)	Externally verified (Yes/ No/ Unclear)	Compli-ance rate ***	Reported (Yes/ No/ Om.)	Externally verified (Yes/ No/ Un-clear)	Compli-ance rate ****	Reported (Yes/ No/ Om.)	Externally verified (Yes/ No/ Un-clear)	Compli-ance rate	Reported (Yes/ No/ Om.)	Externally verified (Yes/ No/ Un-clear)	Compli-ance rate *****
Korean Air	Yes	Yes	14.3 %	Yes	Yes	0.0%	No			Yes	Yes	50.0 %
Singapore Airlines	Yes	No	57.1 %	Yes	No	60.0 %	No			Yes	No	100. 0%
Thai Airways International	Om.*			Om.*			Om.*			Yes	No	50.0 %
China Airlines	Yes	No	14.3 %	Yes	No	0.0%	Yes	No	50.0 %	Yes	No	75.0 %
EVA Air	Yes	Yes	14.3 %	Yes	Yes	20.0 %	No			Yes	Yes	75.0 %
Aegean Airlines	Om.**			No			No			Yes	No	75.0 %
Finnair	Yes	Un-clear	28.6 %	Yes	Un-clear	20.0 %	Yes	Un-clear	33.3 %	Yes	Un-clear	0.0%
Icelandair	Yes	No	16.7 %	Yes	No	25.0 %	Yes	No	40.0 %	Yes	No	50.0 %
SAS	Yes	Un-clear	14.3 %	Yes	Un-clear	0.0%	No			Yes	Un-clear	100. 0%
Turkish Airlines	Yes	No	57.1 %	Yes	No	60.0 %	No			No		
Aeromexico	Yes	Yes	42.9 %	Om.**			Om.**			Yes	Yes	100. 0%
Air Canada	Yes	Yes	100. 0%	Yes	Yes	100. 0%	Yes	No	60.0 %	Yes	No	100. 0%
Avianca	Yes	Yes	66.7 %	Yes	Yes	60.0 %	No			Yes	Yes	100. 0%
Azul Brazilian Airlines	Yes	No	33.3 %	Yes	No	25.0 %	No			Yes	No	75.0 %
Delta	Yes	No	71.4 %	Yes	No	80.0 %	Yes	No	66.7 %	Yes	No	100. 0%
GOL Linhas Aereas	Yes	No	14.3 %	Yes	No	20.0 %	Yes	No	16.7 %	Yes	No	50.0 %
LATAM Airlines	Yes	Yes	14.3 %	Yes	Yes	20.0 %	Yes	Yes	33.3 %	Yes	Yes	50.0 %
Volaris	Yes	No	14.3 %	Yes	No	20.0 %	No			Yes	No	75.0 %
China Eastern Airlines	Yes	Un-clear	14.3 %	No			No			Yes	Un-clear	75.0 %
Average compliance rate			34.6 %			34.0 %			42.9 %			72.2 %

*) omission: not applicable; **) omission: information unavailable

Appendix 10 GRI emissions disclosures, their external verification, and observed compliance rates for each disclosure (continues)

GRI emissions disclosure	305-5			305-6			305-7			
	Reported (Yes/ No/ Om.)	Externally verified (Yes/ No/ Un-clear)	Compli-ance rate	Reported (Yes/ No/ Om.)	Externally verified (Yes/ No/ Un-clear)	Compli-ance rate	Reported (Yes/No/ Om.)	Externally verified (Yes/ No/ Un-clear)	Compli-ance rate	Level of assurance
Korean Air	Yes	Yes	20.0 %	No			Yes	No	33.3 %	Limited
Singapore Airlines	Yes	No	60.0 %	No			No			
Thai Airways International	Yes	No	20.0 %	No			No			
China Airlines	Yes	No	20.0 %	No			Yes	Yes	100. 0%	Limited
EVA Air	Yes	No	40.0 %	No			Yes	No	100. 0%	Reasonable/ Limited
Aegean Airlines	No	No		No			No			
Finnair	Yes	Unclear	40.0 %	Yes	Unclear	25.0 %	No			
Icelandair	Yes	No	0.0%	No			No			
SAS	No			No			Yes	Unclear	100. 0%	Limited
Turkish Airlines	Yes	No	80.0 %	No			Yes	No	0.0%	
Aeromexico	Yes	Yes	60.0 %	Om.**			Om.**			Limited
Air Canada	Yes	No	100. 0%	No			No	No		Limited
Avianca	No			No			Yes	Yes	33.3 %	Limited
Azul Brazilian Airlines	Yes	No	20.0 %	No			No			
Delta	Yes	No	80.0 %	Yes	No	0.0%	Yes	No	33.3 %	
GOL Linhas Aereas	Yes	No	0.0%	No			No			
LATAM Airlines	Yes	Yes	20.0 %	Yes	Yes	25.0 %	Yes	Yes	33.3 %	Limited
Volaris	Yes	No	20.0 %	No			Yes	No	0.0%	
China Eastern Airlines	Yes	Unclear	20.0 %	No			No			Unclear
Average compliance rate			37.5 %			16.7 %			48.1 %	

*) omission: not applicable; **) omission: information unavailable

Appendix 11 Notes and instructions for counter-accounting

NOTES AND INSTRUCTIONS FOR CROSS-VERIFICATION

INTRODUCTION

Background for why we are doing the counter-accounting study

While the air traffic and its emissions keep growing (e.g. Kharina et al., 2016) and concerns over flying and climate-change increase, there is simultaneously a rising demand for (in)voluntary sustainability reporting (Van der Lugt, van de Wijs and Petrovics, 2020), especially in the area of emissions.

The credibility of climate-related reporting is much associated with external reporting standards, like the Global Reporting Initiative (GRI), the most used sustainability reporting framework in the airline industry (Johansson, 2022). However, claiming compliance with externally established standards, like the GRI, cannot be used alone to evaluate the non-financial performance of airlines. What is (un)disclosed in sustainability reports matters, likewise how compliant airlines are with the GRI standards.

The existent research has demonstrated very few attempts to evaluate the quality of emissions disclosure and the differences between airlines being transparent about their climate impacts and the possible box-ticking approach to such issues (Zieba and Johansson, 2022). The present study aims to address this gap in the literature through the following two research questions:

1) What climate-specific GHG disclosures are (un)disclosed in the GRI-based sustainability reports, and;

2) How compliant are the companies with the GRI standards on these disclosures?

The current study addresses the above research questions through a counter-accounting approach, which in the area of sustainability reporting can be defined as "the process of identifying and reporting information on organisations' significant economic, environmental and social issues that comes from external or unofficial sources … in view of verifying, complementing or countering organisations' official reports on their performance and achievements" (Boiral, 2013, p. 1037). Rather than broadly considering the economic, environmental and social issues, this study focuses on the airlines' emissions disclosures reported in their sustainability reports. In this regard, the present research follows the research design undertaken by Talbot and Boiral (2018), who used content analysis to examine the quality of climate information disclosed by energy-sector companies that use the GRI framework for sustainability reporting. In their study, likewise in the present research, the counter-accounting process is undertaken by comparing the information on climate performance released in sustainability reports and the reporting requirements for the emission disclosures that companies using the GRI Standards are supposed to follow.

The following section provides an overview of the GRI Standards and its associated reporting requirements against which the airlines' emissions disclosures are evaluated in the present counter-accounting study.

Overview of the GRI Standards reporting framework

We compare the airline sustainability reports' emissions disclosures against the GRI Standards, published in 2016. The GRI Standards are a set of interrelated reporting standards, which comprise three Universal Standards (GRI 101: Foundation; 102 General Disclosures; Management Approach), which all organisations claiming compliance with the GRI Standards need to follow, and; Topic-specific Standards in three sustainability areas (i.e. GRI 200: Economic; GRI 300: Environmental; GRI 400 Social). Companies are not expected to report on all topic-specific disclosures but on those topics that have a significant impact and are of interest to the company's stakeholders. Such topics are referred to using the term "materiality".

To prepare a report in compliance with the GRI Standards, an organisation applies the Reporting Principles from the GRI 101: Foundation to identify its material topics. If the reporting organisation identifies emissions (or similar[1]) as its material topic, it should report emissions disclosures following the GRI 305: Emissions disclosure requirements (part of the GRI's topic-specific 300: Environmental Standards). Suppose the reporting organisation has identified emissions (or similar) as its material topic. In that case, it must also report on its management approach to this issue according to the disclosure requirements set in 103: Management Approach. All reporting organisations are also expected to follow a set of GRI 102: General Disclosures. The structure of the GRI Standards (from 2016) is presented below in Figure 1.

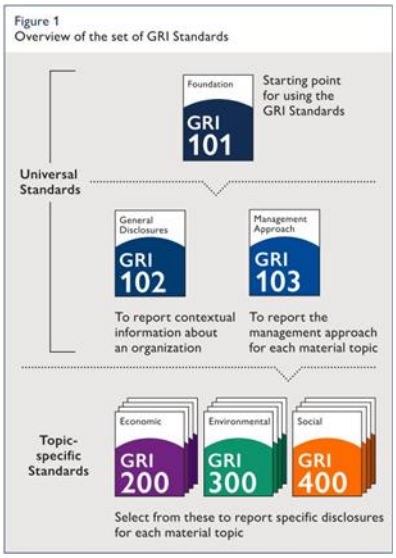

Figure 1 Overview of the set of GRI Standards

The present document contains information extracted from the following documents:

GRI 101: Foundation link 2016*

GRI 102: General Disclosures 2016*

GRI 103: Management Approach 2016*

*) Note that the Universal Disclosures 2016 that were used in this study have been updated and the newest version can be found here: https://www.globalreporting.org/standards/standards-development/universal-standards/

GRI 305: Emissions 2016 (still valid as of 2025):
https://www.globalreporting.org/publications/documents/english/gri-305-emissions-2016/

I suggest browsing through the above documents published by the GRI in addition to following this document in detail before embarking on the process of conducting counter-accounting.

Although our counter-accounting study focuses on comparing the emissions disclosures released in the airlines' sustainability reports against the GRI 305 topic-specific Standards, we are also reviewing a set of requirements from the Universal Standards. Companies claiming compliance with the GRI can choose to do so at the Comprehensive or Core level. Table 1 below presents an adapted outline of criteria for claiming compliance within these options. The 'remarks' column explains the rationale for us checking or not checking certain disclosures.

[1] "The list of topics covered by the GRI Standards is not exhaustive. In some cases, an organization may identify a material topic that does not match exactly with the available topic-specific Standards. In this case, if the material topic is similar to one of the available topic Standards, or can be considered to relate to it, the organization is expected to use that Standard for reporting on the topic in question" (GRI, 2016b, 18)

Table 1 Criteria to claim a report has been prepared in accordance with the GRI Standards. Adapted from (GRI, 2016b, p. 23)

Required criteria	**Core option**	**Comprehensive option**	**Remarks**
Use the correct claim (statement of use) in any published materials with disclosures based on the GRI Standards	Include the following statement: '*This report has been prepared in accordance with the GRI Standards: Core option'*	Include the following statement: *'This report has been prepared in accordance with the GRI Standards: Comprehensive option'*	It will be checked to validate and quantify the compliance claims in the reports.
Use GRI 101: Foundation to follow the basic process for preparing a sustainability report	Comply with all requirements in Section 2 of *GRI 101: Foundation* ('Using the GRI Standards for sustainability reporting')	[Same as for Core]	Checking these is not relevant to our research, but I recommend reading Section 2 in *GRI 101: foundation*.
Use GRI 102: General Disclosures to report contextual information about the organisation	Comply with all reporting requirements for **the following disclosures** from *GRI 102: General Disclosures:* • Disclosures 102-1 to 102-13 (Organisational profile) • Disclosure 102-14 (Strategy) • Disclosure 102-16 (Ethics and integrity) • Disclosure 102-18 (Governance) • Disclosures 102-40 to 102-44 (Stakeholder engagement) • Disclosures 102-45 to 102-56 (Reporting practice)	Comply with all reporting requirements for **all disclosures** from GRI 102: General Disclosures *Reasons for omission are only permitted for the following disclosures: Disclosure 102-17 (Ethics and integrity), and Disclosures 102-19 to 102-39 (Governance). See clause 3.2*	We will only check 102-55; 102-54; 102-47, and; 102-56, as they are relevant in the context of our research. The rationale for checking these disclosures is detailed in later parts of this document.
Use GRI 103: Management Approach to report the management approach and the topic Boundary for all material topics	For each material topic, comply with all reporting requirements from *GRI 103: Management Approach* *Reasons for omission are only permitted for Disclosures 103-2 and 103-3 (see clause 3.2)*	[Same as for Core]	Not checked in this study.
Use the topic-specific GRI Standards (series 200, 300, 400) to report on material topics	For each material topic covered by a topic-specific GRI Standard: • comply with all reporting requirements in the 'Management approach disclosures' section • comply with all reporting requirements for **at least one topic-specific disclosure** For each material topic not covered by a GRI Standard, it is recommended to report other appropriate disclosures for that topic (see clause 2.5.3 *[in GRI 101: foundation*]) *Reasons for omission are permitted for all topic-specific disclosures (see clause 3.2)*	For each material topic covered by a topic-specific GRI Standard: • comply with all reporting requirements in the 'Management approach disclosures' section • comply with all reporting requirements for **all topic-specific disclosures** For each material topic not covered by a GRI Standard, it is recommended to report other appropriate disclosures for that topic (see clause 2.5.3 *[in GRI 101: foundation*) *Reasons for omission are permitted for all topic-specific disclosures (see clause 3.2)*	We are checking the compliance on all topic-specific disclosures appearing in GRI 305: Emission, i.e., 305-1; 305-2; 305-3; 305-4; 305-6; 305-7
Ensure that reasons for omission are used correctly, if applicable	Comply with all requirements in clause 3.2 (Reasons for omission)	[Same as for Core]	This will be checked across all disclosures analysed in this study.
Notify GRI of the use of the Standards	Comply with all requirements in clause 3.4 (Notifying GRI of the use of the Standards)	[Same as for Core]	Not applicable to our research

To understand the two adherence levels better, GRI 101: Foundation (GRI, 2016a) describes the two options as follows:

> "Core. This option indicates that a report contains the minimum information needed to understand the nature of the organization, its material topics and related impacts, and how these are managed.
>
> Comprehensive. This builds on the Core option by requiring additional disclosures on the organization's strategy, ethics and integrity, and governance. In addition, the organization is required to report more extensively on its impacts by reporting all the topic-specific disclosures for each material topic covered by the GRI Standards" (p. 21)

The major difference between the two options is the scope of disclosures organisations must disclose. Many of the topic-specific GRI Standards include numerous disclosures. Where the reports claiming compliance with the Comprehensive option must report all the topic-specific GRI disclosures for each material topic, the reports claiming compliance with the Core option can choose or choose not to report every disclosure for a given topic. "If the reporting organization [following the Core otion] does not report every disclosure for a given topic, it is expected to select and report the disclosure(s) that most adequately reflect its impacts on that topic" (GRI, 2016a, p. 22).

Regardless of the adherence level, and as seen in Table 1, GRI allows the reporting organisation to omit information on certain disclosures if it provides a reason for the omission. When checking the compliance on selected 102 and 305 disclosures, please orient yourself to the following requirements (Table 2) extracted from the GRI 101: Foundation documents Clause 3.2 (GRI, 2016a, p. 24).

Reason for omission

[Clause] 3.2 If, in exceptional cases, an organisation preparing a sustainability report in accordance with the GRI Standards cannot report a required disclosure, the organisation shall provide in the report a reason for omission that:

3.2.1 describes the specific information that has been omitted; and

3.2.2 specifies one of the following reasons for omission from Table 2, including the required explanation for that reason.

Table 2 Reasons for omission. Extracted from GRI 101 (2016, p 24)

Reason for omission	Required explanation in the sustainability report
Not applicable	Specify the reason(s) why the disclosure is considered to be not applicable.
Confidentiality constraints	Describe the specific confidentiality constraints prohibiting the disclosure.
Specific legal prohibitions	Describe the specific legal prohibitions.
Information unavailable	Describe the specific steps being taken to obtain the information and the expected timeframe for doing so. If the reason for omission is due to the fact that the necessary information cannot be obtained, or is not of adequate quality to report (as may sometimes be the case when the Boundary for a material topic extends beyond the reporting organisation), explain this situation.

GRI provides further guidance on understanding and interpreting Clause 3.2. Selected parts of this guidance are extracted and displayed below. To form a dull understanding of it, I recommend reading the full guidance in the GRI 101: Foundation 2016 on page 24.

> "Reasons for omission can be used if, in exceptional cases, an organization cannot report a disclosure that is required for reporting in accordance with the GRI Standards (either Core or Comprehensive option). Reasons for omission can only be used for certain disclosures – see Table 1 for more detail. Additionally, if an organization omits a large number of required disclosures, this can reduce the credibility of the report and its usefulness to stakeholders.
>
> … The 'not applicable' reason for omission can be used if the specific situation covered by the disclosure does not apply to the organization. … 'Not applicable' can also be used as a reason for omission if a disclosure does not cover the specific impacts that make the topic material. …
>
> If the Boundary for a material topic extends beyond the organization, and the organization cannot obtain information of sufficient quality to enable reporting, 'information unavailable' can be used as the reason for omission. In this case, the reason for omission is to include an explanation of why the information cannot be obtained. Even if topic-specific disclosures cannot be reported in this situation, the organization is still required to report its management approach for the topic (using GRI 103: Management Approach) if it wants to claim that its report has been prepared in accordance with the GRI Standards."

Requirements, Recommendations, and Guidance

Before starting the counter-accounting process on the disclosures pertinent to this study, it is good to internalise that the GRI Standards include Requirements, Recommendations, and Guidance. Our research only checks the reported information's compliance with the requirements:

"In the text, requirements are presented in bold font and indicated with the word 'shall'. Requirements are to be read in the context of recommendations and guidance; however, an organisation is not required to comply with recommendations or guidance in order to claim that a report has been prepared in accordance with the Standards." (GRI 101, 2016, p.5)

When conducting the first review of the disclosures, I also recommend checking the disclosure recommendations and guidance, as they offer additional information that helps us understand the disclosures' context and content. Consequently, I have extracted the disclosure requirements and included them in this document against which we can check the airlines' reported information and also the recommendations and guidance to facilitate this checking process.

It must be noted that many Universal and Topic-specific disclosure Standards contain additional requirements on how the information shall be compiled for each disclosure. Based on my preliminary analysis, validating the compliance with some of these additional requirements can be difficult as they are more to do with methodology (e.g. calculations) that do not need to be displayed in the report per se but are something that the reporting organisation needs to take into account when preparing the disclosure. Hence, I recommend that we will conduct less rigorous checks on the additional requirements during our counter-accounting process – especially when checking the topic-specific 305:Emissions disclosures.

Figure 2 shows how requirements, recommendations, and guidance are set out in a topic-specific GRI Standard (extracted from GRI, 2016b, p. 11), along with supplementary information about how we plan to process this information in our counter-accounting study.

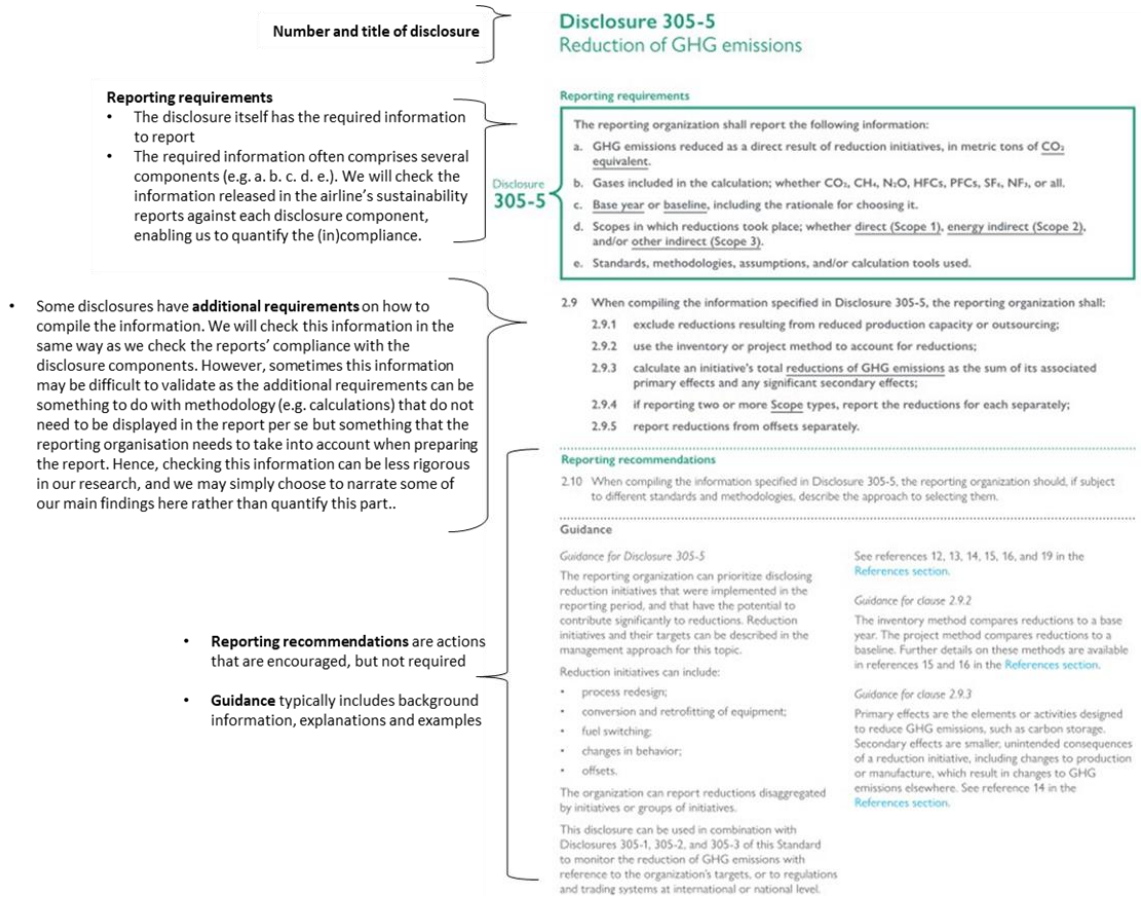

Figure 2 Example page from a topic-specific disclosure standard (adapted from (GRI, 2016b, p. 11)

RESEARCH PROCEDURE

Directed content analysis

The counter accounting we will perform operates at two levels: 1) the level of the disclosure and 2) the level of the disclosure component requirements. When doing the 1st level of the analysis, we are contributing to answering the 1st RQ set for this study: “What climate-specific GHG disclosures are (un)disclosed in the GRI-based sustainability reports”. The 2nd level of the analysis, in turn, addresses the 2nd RQ: “How compliant are the companies with the GRI standards on these disclosures?”

We will approach these two questions by employing content analysis, by which we will systematically identify and categorise the collected data (Hsieh and Shannon, 2005). As the data under scrutiny is already publically available and downloaded, we do not need to collect or transcribe any data. All needed data for the analysis exists in the published airline sustainability reports.

In the first step, we will follow Boiral (2013) and Macellari et al. (2021) by constructing an analysis grid (using Excel Spreadsheet) based on the GRI Standards guidelines, which includes selected Universal disclosures and Emission disclosures. We will then verify whether the reported information in the sustainability reports complies with the requirements outlined in the GRI Standards. Using the analysis grid helps us also quantify the results at later stages of the analysis.

The coding will be conducted by two researchers independently and then comparing the results in order to improve the study’s intracoder reliability, which will strengthen the validity of the coding instrument. We will follow Kondracki et al., (2002) to conduct such reliability checks as part of pilot testing and at intervals to eliminate systematic differences between the coders.

The coding process itself resembles that of ‘directed content analysis’, where we will utilise existing research to help us determine the initial coding scheme (Hsieh and Shannon, 2005). This way, we validate and possibly expand the previously used coding schemes by adapting them in a new setting (see ibid.).

The directed approach to content analysis begins by using prior research to identify key concepts or variables as initial coding categories (Potter & Levine-Donnerstein, 1999 in Hsieh and Shannon, 2005). Using variables tested in prior studies helps us improve the study’s construct validity (Kondracki, Wellman and Amundson, 2002).

We will use a set of coding categories in the present study, based partly on the GRI Standards and partly on those adapted from Talbot and Boiral’s (2018) study. In case new coding categories emerge, they need to be tested rigorously in the coding system (Kondracki, Wellman and Amundson, 2002). Mutual exclusivity of the coding categories should be of our interest because we also aim to quantify and measure the results (ibid.). Following Talbot and Boiral’s (2018) counter-accounting study, validity can also be addressed by defining and discussing the coding categories between the researchers involved in the process. Therefore, we must discuss and agree on the coding categories to finalise the coding scheme used in the pilot testing phase.

The entire content analysis process is displayed in Figure 3, where the current research stage is circled in red. Any changes to Figure 3 will be documented, and, in this way, the figure can be included in our paper’s manuscript. We are currently at the stage of piloting the initial coding scheme, which is subject to adjustments based on our discussions after the pilot testing.

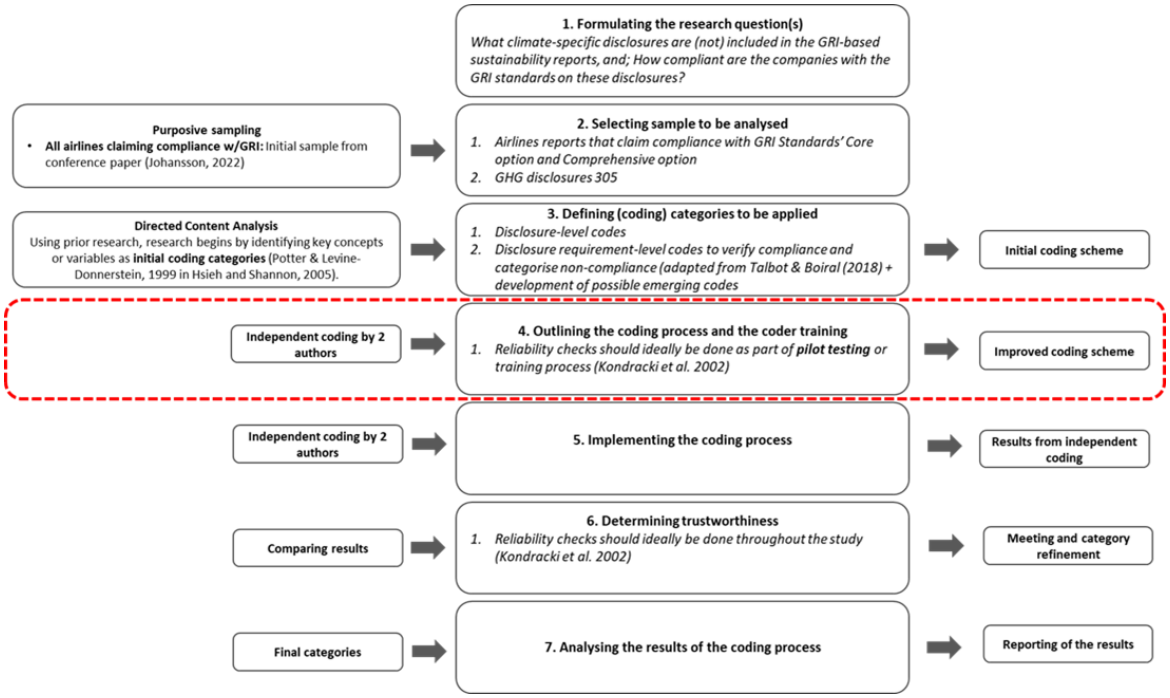

Figure 3 Process of the analysis

Coding Scheme

Figure 4 on the next page is an extract from the analysis grid, demonstrating how to operate the Excel worksheet in this counter-accounting study. The disclosure level information in the figure is inserted in columns B-D (dark blue), and the information concerning the disclosure compliance is inserted in columns E-H (light blue cells representing the disclosure component). The codes (defined in tables on the following pages) will be selected from the worksheet's dropdown menus. The codes are subject to changes based on our discussions after the pilot testing.

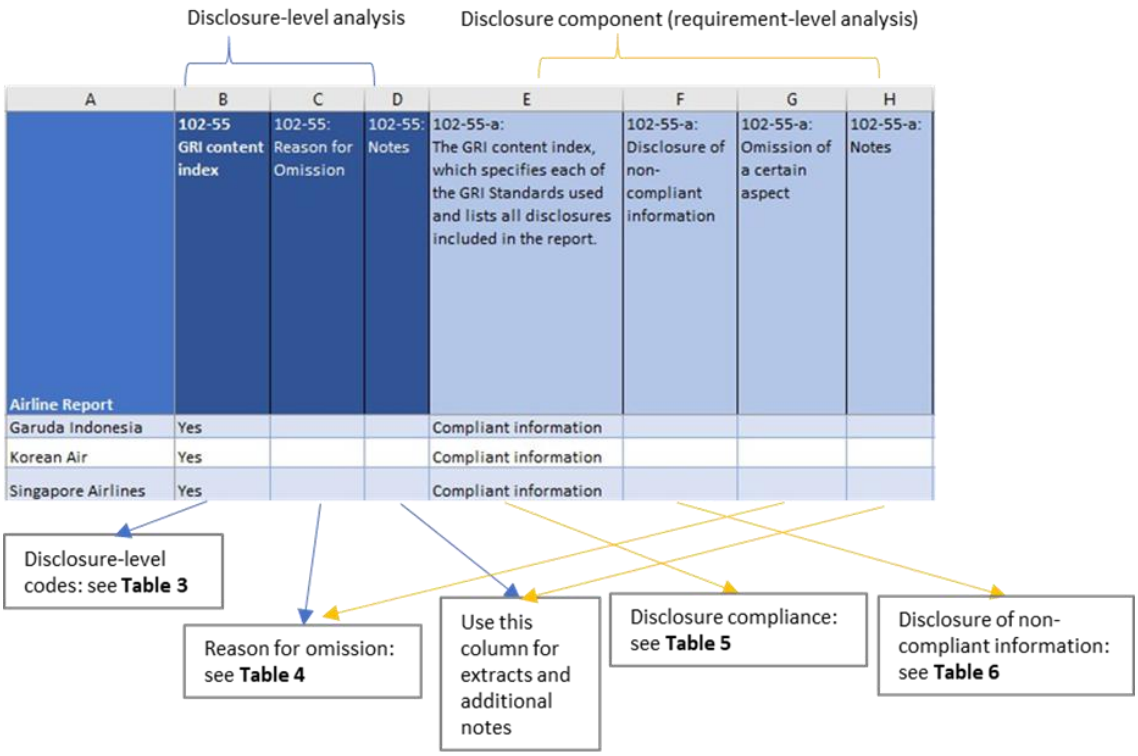

Figure 4 How to operate the Analysis Grid

Codes and their definitions

Table 3 displays codes and definitions for the disclosure-level coding. These codes apply to all disclosure-level information included in this study.

Disclosure-level codes	
Code	**Explanation**
Yes	The company has reported the given disclosure (look for the disclosure code on the index page or in the report)
No	The company has neither reported the given disclosure nor justified its omission
Omission	The company has provided a justification for omitting the given disclosure (proceed to the cell concerning omission)
Uncertain	The coder is uncertain about how to code the disclosure. The issue will be discussed and resolved with the co-author (describe the issue in the cell devoted to notes)
N/A	In some cases the requirement component is not applicable (use the cell devoted to notes to describe why the requirement is N/A)
	Left blank on purpose - description can be added later

Table 4 displays the codes and definitions for situations where a report provides a reason for the omission. Please note that the reports may provide reasons for omitting the entire disclosure or justifying the non-disclosure of certain disclosure components. The codes used are the same in both cases.

The codes have been extracted directly from the GRI's requirements concerning the reasons for omission (see table 2) and supplemented with the field "other" if the reason for the omission falls outside the GRI's approved reasons. The reasons for omission should always be extracted from the report and entered in the 'notes' cell, using "quotation" marks and page numbers, for any possible further analysis.

Table 4 Codes for omissions

Reason for omission	
Not applicable	The report has specified the reason(s) why the disclosure is considered to be not applicable (copy paste the reason from the report to the cell devoted to notes)
Confidentiality constraints	The report has described the specific confidentiality constraints prohibiting the disclosure (copy paste the reason from the report to the cell devoted to notes)
Specific legal prohibitions Information	The report has described the specific legal prohibitions (copy paste the reason from the report to the cell devoted to notes)
Information unavailable	The report has described the specific steps being taken to obtain the information and the expected timeframe for doing so; If the reason for omission is due to the fact that the necessary information cannot be obtained, or is not of adequate quality to report (as may sometimes be the case when the Boundary for a material topic extends beyond the reporting organization), explain this situation. (copy paste the reason from the report to the cell devoted to notes)
Other	The report has specified a justification for the omission, which is none of the above GRI approved omissions (copy paste the reason from the report to the cell devoted to notes)
	Left blank on purpose - description can be added later

Table 5 displays the codes and definitions used to validate the given disclosures' compliance

Table 5 Codes for disclosure compliance

Disclosure compliance	
Code	**Explanation**
Compliant information	The information in the given component is compliant with the disclosure requirement.
Non-compliant information	The information given shows nonconformity with the requirement (proceed to the cell concerning disclosure of non-compliant information).
Omission	The report provides a justification for the non-disclosure of the given component of the disclosure (proceed to the cell concerning omission).
Uncertain	The coder is uncertain about how to code the compliance. The issue will be discussed and resolved with the co-author (describe the issue in the cell devoted to notes).
N/A	In some cases the requirement component is not applicable (use the cell devoted to notes to describe why the requirement is N/A)
	Left blank on purpose - description can be added later

Table 6 displays the codes and definitions used when identifying and categorising disclosures that are non-compliant with the GRI standards. The coding categories have been adapted from Talbot and Boiral (2018).

Table 6 Codes for disclosure of non-compliant information

Disclosure of non-compliant information	
Code	**Explanation**
Incomplete information	The information is incomplete in terms of certain aspects, e.g., not all elements are taken into account (describe in the cell devoted to notes, which part of the information is incomplete).
Unrepresentative information	There is confusion on the manners of reporting certain aspects, e.g., the company is reporting aspects that do not correspond to the information in the given disclosure requirement.(describe in the cell devoted to notes how the information is unrepresentative).
Complete lack of information	There exists a complete lack of information concerning the given disclosure requirement.
Omission	The report provides a justification for the non-disclosure of certain aspects (proceed to the cell concerning omission).
Other	In case the non-compliance falls outside the above-given categories (describe the nature of non-compliance in the cell devoted to notes).
Uncertain	The coder is uncertain about how to code. The issue will be discussed and resolved with the co-author (describe the issue in the cell devoted to notes).
	Left blank on purpose - description can be added later

In order to better understand the coding of non-compliant information, Cases 1 and 2 provide examples of when non-compliant information is coded as incomplete information and unrepresentative information.

Case 1: Incomplete information

Use this code when the information is incomplete in terms of certain aspects, e.g., not all elements are considered.

The most straightforward example of an occurrence where incomplete information is given is when a disclosure component consists of several aspects. For example, disclosure component 305-3-e requires further details for Scope 3 emissions, such as the chosen base year, the rationale for choosing the base year, emissions in the base year, and the context for any significant changes in emissions that triggered recalculations of base year emissions. These further details are indicated by numbers i.-iii.

In the below example (Figure 5), Finnair has failed to act in accordance with (i) while it has complied with (ii) and (iii) when reporting 305-3-e. Therefore, Finnair has shown non-compliance with the reporting requirements set for this disclosure component, and its non-compliance can be coded as “incomplete information”. The part of the disclosed information which is incomplete should be described in the cell devoted to notes, as shown below.

305-3-e: Base year for the calculation, if applicable, including: i. the rationale for choosing it; ii. emissions in the base year; iii. the context for any significant changes in emissions that triggered recalculations of base year emissions.	305-3-e: Disclosure of non-compliant information	305-3-d: Omission of a certain aspect	305-3-e Notes
Non-compliant information	Incomplete information		The information is incomplete in terms of certain aspects - not all elements are taken into account: i. Finnair has indicated the base year 2018 against which comparison can be made, but it has not provided a rationale for choosing it. therefore finnair fails to act in accordance with (i). ii. base year 2018 emissions have been indicated. Therefore compliant with (ii) iii. Finnair has indicated explained the context that has triggered recalculations for the base year: "2018 figure has been restated to include scope 3 emissions only." (p. 21). Hence, compliance with (iii)

Figure 5 Case 1: Incomplete information

Case2: Unrepresentative information

Use this code when you deem there is confusion on the manners of reporting certain aspects, e.g., the company is reporting aspects that do not correspond to the information in the given disclosure requirement

In the context of emissions, reporting unrepresentative information may occur, e.g., when a company reports the requested information in incorrect units. In the below example (Figure 6), the disclosure component 305-5-a requires an organisation to report reduced GHG emissions as a direct result of reduction initiatives in metric tons of CO2 equivalent. Both Korean Air and Singapore Airlines have shown non-compliance with this disclosure component by reporting unrepresentative information. In both cases, the GHG emission reductions have been indicated in metric tons of CO2 (carbon dioxide) but not in metric tons of CO2 equivalent (often shortened as CO2eq, CO2e or CO2-e), which is why the indicated unit is unrepresentative. How the information has been deemed to be unrepresentative is described in the cell devoted to notes.

305-5-a GHG emissions reduced as a direct result of reduction initiatives, in metric tons of CO2 equivalent.	305-4-a: Disclosure of non-compliant information	305-5-a: Omission of a certain aspect	305-5-a Notes
Non-compliant i	Unrepresentative information		The company is reporting aspects that do not correspond to the information in the given disclosure requirement. The disclosure requirement asks the company to indicate reductions in CO2 equivalent. However, Korean Air indicates its reductions in metric tons of CO2 but not in tCO2eq. The unit used is therefore incorrect
Non-compliant i	Unrepresentative information		The company is reporting aspects that do not correspond to the information in the given disclosure requirement. The disclosure requirement asks the company to indicate reductions in CO2 equivalent. Even though Singapore airlines indicates its reductions by its initiatives and together on multiple pages (p. 98, pp. 102-111), the reductions are not indicated in tCO2eq but in CO2. The unit used is therefore incorrect

Figure 6 Case 2: Unrepresentative information

NB! We may also wish to check some additional details in the process of checking information on certain selected disclosures. This may require us to use additional coding that deviates from the information mentioned above. In cases where different codes are used, the codes are defined accordingly.

Also, as described earlier, checking the compliance of the reported information against the GRI disclosures' additional information may be very challenging. Therefore, we do not need to check this information as rigorously as we do it on the disclosure components. To keep the process straightforward, we will use the same procedures to check the disclosure components' compliance and compliance with the additional requirements. If, in your opinion, checking certain additional requirements set for a certain disclosure is impossible, select 'uncertain' from the dropdown and simply explain that validating the compliance against the additional requirements is difficult and might be outside our expertise and means.

How to read the reporting requirements in this document

The remaining parts of this document contain extracted information on selected disclosures from the set of GRI Standards, including their Requirements, Recommendations, and Guidance. These extracts are made in black colour. We only check the compliance against the disclosure requirements (indicated in bold). However, the recommendations and guidance information helps us understand the reporting requirements better, which is why they are also included in the extracts.

Each disclosure requirement (+ possible recommendations and guidance) is followed by a notes section written in green. These notes provide detailed and supplementary information needed to facilitate and streamline the process of analysing the airlines' sustainability reports and using the codes when operating the analysis grid.

Sometimes the GRI's disclosure requirements are also quite technical, which is why the supplementary information (in green) is provided to help us understand the content of the requirements. Such information is mainly collected from the GRI Standards but also from sources listed in the GRI Standards' reference sections based on which the GRI organisation has constructed its disclosure requirements. IATA's Airline Sustainability Reporting Handbook has also been used as a resource, especially in parts where the airline context is considered to be important.

CHECKING COMPLIANCE WITH SELECTED GRI 102: GENERAL DISCLOSURES

102-55 - GRI content index

The reporting organisation shall report the following information:

- **a. The GRI content index, which specifies each of the GRI Standards used and lists all disclosures included in the report.**
- **b. For each disclosure, the content index shall include:**
  - **i. the number of the disclosure (for disclosures covered by the GRI Standards);**
  - **ii. the page number(s) or URL(s) where the information can be found, either within the report or in other published materials;**
  - **iii. if applicable, and where permitted, the reason(s) for omission when a required disclosure cannot be made**

Additional requirements
6.3 When reporting the GRI content index as specified in Disclosure 102-55, the reporting organisation shall:
6.3.1 include the words 'GRI Content Index' in the title;
6.3.2 present the complete GRI content index in one location;
6.3.3 include in the report a link or reference to the GRI content index, if it is not provided in the report itself;
6.3.4 for each GRI Standard used, include the title and publication year (e.g., GRI 102: General Disclosures 2016);
6.3.5 include any additional material topics reported on which are not covered by the GRI Standards, including page number(s) or URL(s) where the information can be found.

…….
For the GRI's reporting guidance recommendations and guidance refer to:
GRI 102: General Disclosures 2016*
*) Note that the Universal Disclosures have been updated, and the latest version can be found here: https://www.globalreporting.org/standards/standards-development/universal-standards/
……

Notes on 102-55 - GRI content index
IATA's handbook describes the GRI content index as follows: "The report should contain a content index-a navigation tool to help trace information in the report. This is usually in the form of a table, showing the topics covered, the disclosures used and their location in the report. For information not disclosed on material topics, reasons for omission can be included in the content index. Non-GRI disclosures can also be included in the content index, with 'own indicator' or similar noted." (IATA, 2020, p. 22)

We will start the counter-accounting process by checking this disclosure (102-55), as using the content index makes it easier to locate all the other disclosures whose compliance we will check.

Using the analysis grid, document whether 102-55 is reported using the disclosure-level codes; then check the compliance of the reported information against the disclosure component requirements using appropriate codes. When checking the disclosure-level information, check the GRI Content Index, and indicate whether the company has reported the disclosure or provided any reason for omitting it or if the disclosure is left undisclosed. If the disclosure is reported, then check whether the reported information complies with the disclosure components indicated below.

As far as 102-55-a is concerned, check that the report has the GRI content index. This index is often found at the end of the report. Notice that some reports (esp. those online) may contain a

link to a separate webpage where the GRI content index is. Be that as it may, the reported information is compliant with this disclosure component as long as the GRI content index is found, listing disclosures included in the report.

As far as 102-55-b-i is concerned, check that a GRI-assigned disclosure number accompanies each disclosure in the GRI index. These numbers are presented in the form of xxx-xx, starting with 102 (for General Disclosures), 103 (for Management Approach disclosures), 200 (for Economic topic-specific disclosures), 300 (for Environmental topic-specific disclosures), and 400 (for social topic-specific disclosures), and ending with the specific disclosure numbers (e.g. 102-55 is the disclosure number for GRI content index). Reports can also contain non-GRI disclosures, marked with 'own indicator' or similar. As far as 102-55-b-ii is concerned, check that each disclosure listed on the GRI Index contains a page number or URL to the location where the corresponding information can be found. Reports can also indicate a location in another published source than the report itself. The information is compliant as long as any location with a page number (except when URL) is provided. As for 102-55-iii, look for any place in the index where omissions are shown. Usually (but not always), omissions are indicated in a separate column.

Additionally, document whether, in your opinion, the disclosure complies with the additional requirements, similarly to the disclosure components.

_____

102-54 - Claims of reporting in accordance with the GRI Standards

Disclosure 102-54 in GRI 102: General Disclosures requires reporting the claim made by the organisation for any reports prepared in accordance with the Standards (either Core or Comprehensive option)

The reporting organisation shall report the following information:

a. **The claim made by the organisation, if it has prepared a report in accordance with the GRI Standards, either:**
   i. *'This report has been prepared in accordance with the GRI Standards: Core option'*;
   ii. *'This report has been prepared in accordance with the GRI Standards: Comprehensive option'*.

……
For the GRI's reporting guidance and recommendations and guidance refer to:
GRI 102: General Disclosures 2016*
*) Note that the Universal Disclosures have been updated, and the latest version can be found here: https://www.globalreporting.org/standards/standards-development/universal-standards/
……

Notes on 102-54 - Claims of reporting in accordance with the GRI Standards
"Reporting airlines can claim that their report has been prepared 'in accordance' with the GRI Standards. There are two options–Core and Comprehensive–that depend on the degree to which the Standards have been applied. There is a specific 'statement of use' the reporting airline needs to use in order to claim the report is in accordance with the Standards"(IATA, 2020, p.22)

Using the analysis grid and checking from the GRI index page, document whether 102-54 is reported using disclosure-level codes; then check the compliance of the reported information against the disclosure component requirements using appropriate codes. Finally, indicate the adherence level in the column 'Level of adherence'. When checking the disclosure-level information, check the GRI Content Index, and indicate whether the company has reported the disclosure or provided any reason for omitting it or if the disclosure is left undisclosed. If the disclosure is reported, then check whether the reported information complies with the disclosure components indicated below.

102-54-a asks the report to state whether the report has been prepared in accordance with Core (statement i.) or Comprehensive (statement ii.) option. The information demonstrates compliance if either one of the specific statements of use is provided in the report.

Choose one of the codes (Table 7) in the column "Level of adherence", corresponding to the reported adherence level.

Table 7 Codes for adherence level

Level of compliance	
Code	**Explanation**
Core	The report claims compliance with the GRI Standards: Core option
Comprehensive	The report claims compliance with the GRI Standards: Comprehensive option
Other	In case the the report claims compliance with a level other than Core or Comprehensive (copy-paste the compliance level from the report in the cell devoted to notes).
Uncertain	The coder is uncertain about how to code. The issue will be discussed and resolved with the co-author (describe the issue in the cell devoted to notes).
	Left blank on purpose - description can be added later
	Left blank on purpose - description can be added later

102-47 List of material topics

The reporting organisation shall report the following information:

a. **A list of the material topics identified in the process for defining report content.**

Notes on 102-47 - List of material topics

By reviewing this disclosure, we are not only checking its (in)compliance in reports, but we are also checking whether the company has identified "emissions" (or similar) as the company's material topic. If the reporting airline has not indicated emissions as a material topic, there is no need to check the report for 103: Management Approach or 305: Emission disclosures.

Using the analysis grid and checking from the GRI index page, document whether 102-47 is reported using disclosure level codes; then check the compliance of the reported information against the disclosure component requirements using appropriate codes. Finally, indicate in a separate column whether the report has identified emissions (or similar) as one of its prioritised material topics. When checking the disclosure-level information, check the GRI Content Index, and indicate whether the company has reported the disclosure or provided any reason for omitting it or if the disclosure is left undisclosed. If the disclosure is reported, then check whether the reported information complies with the disclosure components indicated below.

As far as 102-47-a is concerned, check that the report contains a list of material topics which it has prioritised for inclusion in the report.

Additionally, use the disclosure-specific codes (Table 8) to document whether the report identifies emissions (or similar[2]) as the airline's material topic; specify the material topic in the "notes" column.

Table 8 Codes for indicating whether emissions are material

Emissions (or equivalent) identified as a material topic?	
Code	**Explanation**
Yes	The report has listed emissions (or similar) as its material topic, which it has reported using GRI's 305 Emission disclosure standards (describe or copy-paste the identified topic to the cell devoted to notes).
No	The report has not identified emissions as one of its material topics (use the cell devoted to notes if there is a need to elaborate)
Uncertain	The coder is uncertain about how to code. The issue will be discussed and resolved with the co-author (describe the issue in the cell devoted to notes).
	Left blank on purpose - description can be added later

102-56 External assurance

The reporting organisation shall report the following information:

a. **A description of the organisation's policy and current practice with regard to seeking external assurance for the report.**
b. **If the report has been externally assured:**
   i. **A reference to the external assurance report, statements, or opinions. If not included in the assurance report accompanying the sustainability report, a description of what has and what has not been assured and on what basis, including the assurance standards used, the level of assurance obtained, and any limitations of the assurance process;**
   ii. **The relationship between the organisation and the assurance provider;**
   iii. **Whether and how the highest governance body or senior executives are involved in seeking external assurance for the organisation's sustainability report**

……..

For the GRI's reporting guidance and recommendations and guidance refer to:
GRI 102: General Disclosures 2016*
*) Note that the Universal Disclosures have been updated, and the latest version can be found here: https://www.globalreporting.org/standards/standards-development/universal-standards/
……

2 "The list of topics covered by the GRI Standards is not exhaustive. In some cases, an organization may identify a material topic that does not match exactly with the available topic-specific Standards. In this case, if the material topic is similar to one of the available topic Standards, or can be considered to relate to it, the organization is expected to use that Standard for reporting on the topic in question" (GRI, 2016b, 18)

Notes on 102-56 - External assurance

"The use of external assurance for sustainability reports is advised, but it is not required in order to make a claim that a report has been prepared in accordance with the GRI Standards. An organization is [nevertheless] required to report its approach to external assurance with Disclosure 102-56" (IATA, 2020a).

By reviewing this disclosure, we are not only checking for its compliance in reports, but we can also quantify how many reports have been externally assured. Depending on our results, we may also discuss and question the quality of such assurance.

Using the analysis grid and checking from the GRI index page, document whether 102-56 is reported using disclosure level codes, then check its compliance against the disclosure component requirements using appropriate codes. Finally, inform about the existence of external assurance using the additional disclosure-specific codes and columns for additional information. When checking the disclosure-level information, check the GRI Content Index, and indicate whether the company has reported the disclosure or provided any reason for omitting it or if the disclosure is left undisclosed. If the disclosure is reported, then check whether the reported information complies with the disclosure components indicated below.

As for 102-56-a, check if the airline has described its policy towards external assurance. The report shows compliance with this disclosure component if such a description exists (whether assured or not).
As for 102-56-b, if the report has not been externally assured, select N/A from the dropdown menu. If the report has been externally assured, the report is compliant with this disclosure component if it reports the aspects outlined in i.-iii. Hence, look for the following information (the reported information shows compliance if each point is covered):

i. A reference to the external assurance report, statements, or opinions. If not included in the assurance report accompanying the sustainability report, a description of what has and what has not been assured and on what basis, including the assurance standards used, the level of assurance obtained, and any limitations of the assurance process.
ii. The relationship between the organisation and the assurance provider;
iii. Whether and how the highest governance body or senior executives are involved in seeking external assurance for the organisation's sustainability report

Additionally, in a separate "External assurance" column, use the disclosure-specific codes (Table 10) to document whether the report has been externally assured. Then use the following two columns to document: the level of assurance (copy-paste from the report) and specification of the disclosures reviewed by the external assurance provider (copy-paste from the report). We may need this information later when discussing and drawing conclusions on the quality of externally assured disclosures.

Table 10 Exteral Assurance

Externally assured	
Code	**Explanation**
Yes	The report has been externally assured (use the following cells to describe the Standard and level of assurance indicated in the assurance report; list out the disclosures that the external assurance provider has reviewed)
No	No external assurance (use the cell devoted to notes if there is a need to elaborate)
Uncertain	The coder is uncertain about how to code. The issue will be discussed and resolved with the co-author (describe the issue in the cell devoted to notes).
	Left blank on purpose - description can be added later
	Left blank on purpose - description can be added later

CHECKING COMPLIANCE WITH GRI 305: EMISSIONS

GRI 305: Emissions is a topic-specific GRI Standard in the 300 series (Environmental topics).

An organisation preparing a report in accordance with the GRI Standards uses this Standard, GRI 305: Emissions, if this is one of its material topics.

In our counter-accounting study, we are the most interested in checking the reports' compliance against the GRI 305: Emission Standards. If the report has indicated emissions (or similar) in its list of material topics and claims compliance with the GRI Standards, it must report on this topic following the requirements in the 305 Standards. Those reports claiming compliance with the Comprehensive option must report all disclosures; those claiming compliance with the Core option do not need to report every disclosure for a given topic but are expected to select and report the disclosure(s) that most adequately reflect the company's impacts on that topic (GRI, 2018a)

305-1 Direct (Scope 1) GHG emissions

The reporting organisation shall report the following information:

a. **Gross direct (Scope 1) GHG emissions [3] in metric tons of CO2 equivalent[4].**
b. **Gases included in the calculation; whether CO2, CH4, N2O, HFCs, PFCs, SF6, NF3, or all.**
c. **Biogenic CO2 emissions[5] in metric tons of CO2 equivalent.**
d. **Base year [6] for the calculation, if applicable, including:**
   i. the rationale for choosing it;
   ii. emissions in the base year;
   iii. the context for any significant changes in emissions that triggered recalculations of base year emissions.
e. **Source of the emission factors and the global warming potential (GWP)[7] rates used, or a reference to the GWP source.**
f. **Consolidation approach for emissions; whether equity share, financial control, or operational control.**
g. **Standards, methodologies, assumptions, and/or calculation tools used.**

Additional Requirements

When compiling the information specified in Disclosure 305-1, the reporting organisation shall

2.1.1 exclude any GHG trades from the calculation of gross direct (Scope 1) GHG emissions; 2.1.2 report biogenic emissions of CO2 from the combustion or biodegradation of biomass separately from the gross direct (Scope 1) GHG emissions. Exclude biogenic emissions of other types of GHG (such as CH_4 and N_2O), and biogenic emissions of CO_2 that occur in the life cycle of biomass other than from combustion or biodegradation (such as GHG emissions from processing or transporting biomass).

[3] GHG emissions from sources that are owned or controlled by an organization Note 1: A GHG source is any physical unit or process that releases GHG into the atmosphere. Note 2: Direct (Scope 1) GHG emissions can include the CO2 emissions from fuel consumption.

[4] measure used to compare the emissions from various types of greenhouse gas (GHG) based on their global warming potential (GWP) Note: The CO2 equivalent for a gas is determined by multiplying the metric tons of the gas by the associated GWP
[5] emission of CO2 from the combustion or biodegradation of biomass
[6] historical datum (such as year) against which a measurement is tracked over time
[7] value describing the radiative forcing impact of one unit of a given GHG relative to one unit of CO2 over a given period of time Note: GWP values convert GHG emissions data for non-CO2 gases into units of CO2 equivalent

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For the GRI's reporting recommendations and guidance, refer to:
GRI 305: Emissions https://www.globalreporting.org/publications/documents/english/gri-305-emissions-2016/

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Notes on 305-1 - Direct (Scope 1) GHG emissions

Using the analysis grid and checking from the GRI index page, document whether 305-1 is reported using disclosure level codes; then check the compliance of the reported information against the disclosure component requirements using appropriate codes. Finally, check whether, in your opinion, the report is following the additional requirements that provide instructions for how the given disclosure should be compiled. When checking the disclosure-level information, check the GRI Content Index, and indicate whether the company has reported the disclosure or provided any reason for omitting it or if the disclosure is left undisclosed. If the disclosure is reported, then check whether the reported information complies with the disclosure components indicated below.

When checking the compliance with 305-1-a, it is worth noting that it requests the reporting organisation to report gross direct (Scope 1) GHG emissions in metric tons of CO2 equivalent, which means a quantity of a given mixture from various types of greenhouse gas (GHG) based on their global warming potential (GWP). Even if the reporting organisation would only include carbon dioxide (CO2) emissions in its calculations, it should still report in carbon dioxide equivalent form or provide a justification for why it is not reporting in CO2eq; otherwise, the given information is not presented in accordance with the disclosure requirement. There are some variations of how carbon dioxide equivalence is expressed, including per kg or tonne of CO2 equivalent, kgCO2eq or tCO2eq (Factor-X, 2016), CO2-e (Turner and Collins, 2013), and CO2e (ICAO, 2019). Also worth noting is that while CO2e may not apply to jet fuel and flight operations, CO2e is likely to apply to ground operations and the gasoline used for its operations (which also belong to Scope 1).

As far as 305-1-b is concerned, it is understood that the reporting organisation needs to specify which of the following GHG emissions [it has] included in the calculation [of Scope 1 GHG emissions]; whether CO2, CH4, N2O, HFCs, PFCs, SF6, NF3, or all. In other words, GRI requires a breakdown of Scope 1 emissions by GHG type: it is not enough that the airline reports its Scope 1 emissions in the unit of tCO2e (component 305-1-a); it also needs to specify which GHGs are included in the calculation that results in the gross direct (Scope 1) GHG emissions in tCO2e. Reports may have separate methodology sections that provide pertinent supplementary information on this matter. The report acts in accordance with the disclosure requirements set for this component if one or more of the abovementioned gasses are indicated or if it provides a stated reason for the omission.

305-1-c requires reporting carbon dioxide emissions from biologically sequestered carbon separately from the gross GHG emissions for Scope 1. Biogenic carbon dioxide emissions are "emissions of CO2 from the combustion or biodegradation of biomass" (GRI, 2016c, p. 18). It is unlikely that (most) airline operators would be able to report biogenic CO2 emissions in metric tons of CO2 equivalent, although bio-based aviation fuels have been developed (Prussi et al., 2021), and their deployment is underway. Nevertheless, to comply with 305-1-c, the reporting organisation should either report the biogenic CO2 emissions in tCO2e or provide a stated reason for the omission, such as "Not applicable", followed by an explanation that "there are no biogenic emissions".

When checking 305-1-d, check if the reporting organisation has indicated a base year, i.e. "historical datum (such as year) against which a measurement is tracked over time" (GRI, 2016c, p. 17). Note also that "in addition to the base year and the base year emissions, Disclosure 305-1 (d) requires the rationale for choosing the base year and the context for any significant changes in emissions that triggered recalculations of base year emissions" (CDP and GRI, 2017, p. 50). The report acts in accordance with this disclosure component if all of these required aspects are reported. Here, recalculations come into question if the reported Scope 1 emissions for the base year differ from the previously reported Scope 1 emissions (those published in the previous report). In other words, a rationale for the recalculations should be provided if there is a discrepancy between the reported emissions for the base year. In order to check the compliance, the previous year's reports must be checked. Please note that 305-1-d requires the airline to report its base year[8] for the calculation, "if applicable". In some cases, the airline may be reporting its Scope 1 emissions using the GRI for the first time. In such a case, the airline may not have a base year yet, and reporting it is not applicable. If the base year is missing, check the previous year's report. If the previous year's report has reported Scope 1 emissions using the GRI, then 305-1-d should apply to them. If the base year is missing for Scope 1 and the airline reports on it the first time, then select N/A from the dropdown menu.

Disclosure 305-1-e requires the airline to report the source of the emissions factors used and a reference to the global warming potential (GWP) source or the global warming potential rates. In order to check the compliance with this disclosure component, the following additional definitions may be needed for one to understand the concepts of 'emission factor' and 'GWP'

Emission factor stands for a "factor allowing GHG emissions to be estimated from a unit of available activity data (e.g. tonnes of fuel consumed, tonnes of product produced) and absolute GHG emissions" (WBCSD and WRI, 2012, p. 97). "For most small to medium-sized companies and for many larger companies, Scope 1 GHG emissions will be calculated based on the purchased quantities of commercial fuels (such as natural gas and heating oil) using [already] published emission factors." (ibid., p. 42).

Global warming potential (GWP), in turn, can be understood as:

> "an index that attempts to integrate the overall climate impacts of a specific action (e.g., emissions of CH4, NOx or aerosols). The duration of the perturbation is included by integrating radiative forcing over a time horizon (e.g., standard horizons for IPCC have been 20, 100, and 500 years). The time horizon thus includes the cumulative climate change and the decay of the perturbation […] GWPs were meant to compare emissions of long-lived, well-mixed gases such as CO2, CH4, N2O, and hydrofluorocarbons (HFC) for the current atmosphere; they are not adequate to describe the climate impacts of aviation. " (Penner et al., 1999).

Considering the above, we can see that the question of whether GWP calculations make sense to the aviation industry is debated (see Penner et al., 1999). It is worth noting that while calculating GWP may not apply to airline companies' flight operations, it can apply to their ground operations (e.g., gasoline and diesel oil used).

Be that as it may, to comply with the disclosure component 305-1-e, a reporting organisation is required to report the following for Scope 1 emissions:

- the source of the emissions factors used (i.e. the source of the value that quantifies the amount of greenhouse gas emissions released per unit of activity) and;
- either a reference to the global warming potential source or the global warming potential rates, or;
- provide a stated reason for their omission.

Regarding 305-1-f, some background of the consolidation approach is worth knowing. As business operations may vary in their legal and organisational structures, in setting their organisational boundaries, companies (should) select an approach for consolidating GHG emissions and apply it consistently to defining those businesses and operations that constitute the company for the purpose of accounting and reporting GHG emissions (WBCSD and WRI, 2012). According to WBCSD and WRI (2012), there are two distinct approaches to consolidating

GHG emissions in corporate reporting: the equity share and the control approaches, of which the latter can be divided into financial control and operational control. In summary, 'GHG Protocol Corporate Standard' describes them as follows:

> "Under the equity share approach, a company accounts for GHG emissions from operations according to its share of equity in the operation. The equity share reflects economic interest, which is the extent of rights a company has to the risks and rewards flowing from an operation. […] Under the control approach, a company accounts for 100 percent of the GHG emissions from operations over which it has control. It does not account for GHG emissions from operations in which it owns an interest but has no control. […] When using the control approach to consolidate GHG emissions, companies shall choose between either the operational control or financial control criteria" (WBCSD and WRI, 2012, p. 17)

Further details of the three approaches can be read in WBCSD and WRI (2012, pp. 16-19) if needed. However, as far as our counter-accounting is concerned, we are interested in checking whether the reporting organisation has reported that their consolidation approach follows one of the three: equity share, financial control, or operational control. If one of them is mentioned, the disclosure for the part of this component is compliant.

305-1-g requires further details such as the standards, methodologies, assumptions, and/or calculation tools used to collect activity data and calculate Scope 1 emissions. "There are a variety of standards, methodologies and protocols available which you may use to aid in the collection and reporting of GHG data, but the large majority refer to the GHG Protocol as their basic reference" (CDP, 2017, p. 99)

305-1-g requires an organisation to release further details such as the standards, methodologies, assumptions, and/or calculation tools used to collect activity data and calculate Scope 1 emissions. Here it is important to check that the reporting organisation provides evidence (in one or more of the forms mentioned above) about how the organisation has calculated its Scope 1 emissions. The report complies with this disclosure component's requirements if such evidence is found. Note that the evidence can also be just a reference to a standard. To that end, "there are a variety of standards, methodologies and protocols available which [organisations] may use to aid in the collection and reporting of GHG data, but the large majority refer to the GHG Protocol as their basic reference" (CDP, 2017, p. 99). See the link[9] the for other CDP-identified standards used to calculate emissions for an inventory (ibid.). Reports may also have separate methodology sections that provide pertinent supplementary information.

Additionally, document whether, in your opinion and if possible, an airline's reported information follows the additional requirements set for this disclosure; Describe your choice made.

[8]historical datum (such as year) against which a measurement is tracked over time

[9] (https://cdn.cdp.net/cdp-production/cms/guidance_docs/pdfs/000/001/048/original/CDP-Supply-Chain-Climate-Change-Guidance.pdf#page=99)

305-2 Energy indirect (Scope 2) GHG

The reporting organisation shall report the following information:

a) Gross location-based <u>energy indirect (Scope 2) GHG emissions</u> in metric tons of <u>CO2 equivalent</u>.

b) If applicable, gross market-based energy indirect (Scope 2) GHG emissions in metric tons of CO2 equivalent.
c) If available, the gases included in the calculation; whether CO2, CH4, N2O, HFCs, PFCs, SF6, NF3, or all.
d) Base year for the calculation, if applicable, including:
i. the rationale for choosing it;
ii. emissions in the base year;
iii. the context for any significant changes in emissions that triggered recalculations of base year emissions.
e) Source of the emission factors and the global warming potential (GWP) rates used, or a reference to the GWP source.
f) Consolidation approach for emissions; whether equity share, financial control, or operational control.
g) Standards, methodologies, assumptions, and/or calculation tools used.

Additional Requirements

2.3. When compiling the information specified in Disclosure 305-2, the reporting organisation shall:

2.3.1 exclude any GHG trades from the calculation of gross energy indirect (Scope 2) GHG emissions;

2.3.2 exclude other indirect (Scope 3) GHG emissions that are disclosed as specified in Disclosure 305-3;

2.3.3 account and report energy indirect (Scope 2) GHG emissions based on the location-based method, if it has operations in markets without product or supplier-specific data;

2.3.4 account and report energy indirect (Scope 2) GHG emissions based on both the location-based and market-based methods, if it has any operations in markets providing product or supplier-specific data in the form of contractual instruments.

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For the GRI's reporting recommendations and guidance, refer to:
GRI 305: Emissions https://www.globalreporting.org/publications/documents/english/gri-305-emissions-2016/
……

Notes on 305-2 - Energy indirect (Scope 2) GHG

Using the analysis grid and checking from the GRI index page, document whether 305-2 is reported using disclosure level codes; then check the compliance of the reported information against the disclosure component requirements using appropriate codes. Finally, check whether, in your opinion, the report is following the additional requirements that provide instructions for how the given disclosure should be compiled. When checking the disclosure-level information, check the GRI Content Index, and indicate whether the company has reported the disclosure or provided any reason for omitting it or if the disclosure is left undisclosed. If the disclosure is reported, then check whether the reported information complies with the disclosure components indicated below.

305-2-a requires an organisation to report gross location-based energy indirect (Scope 2) GHG emissions in metric tons of CO2 equivalent. When checking for compliance with this requirement, check first that the gross emissions for Scope 2 are reported in metric tons of CO2 equivalent. This may appear in various forms, i.e., kg or tonne of CO2 equivalent, kgCO2eq or tCO2eq (Factor-X, 2016), CO2-e (Turner and Collins, 2013), and CO2e (ICAO, 2019). If not presented in the unit of carbon dioxide equivalent form, the given information is not presented in accordance with the disclosure requirement. If the emissions are reported in the unit of metric tons of CO2 equivalent, the reported information complies with the disclosure requirements set for this component. To understand the location-based method, GHG Protocol Scope 2 Guidance defines it as follows:

> "A method to quantify scope 2 GHG emissions based on average energy generation emission factors for defined geographic locations, including local, subnational, or national boundaries" [which applies to] "all electricity grids" (WBCSD and WRI, 2014, 26)

As far as 305-2-b is concerned, GRI requires an organisation to report, if applicable, gross market-based energy indirect (Scope 2) GHG emissions in metric tons of CO2 equivalent. To understand the market-based method, GHG Protocol Scope 2 Guidance defines it as follows:

> "A method to quantify the scope 2 GHG emissions of a reporter based on GHG emissions emitted by the generators from which the reporter contractually purchases electricity bundled with contractual instruments, or contractual instruments on their own." (WBCSD and WRI, 2015, 26)

Part of the GHG Protocol Scope 2 Guidance is that organisations shall account for their Scope 2 emissions using both location-based and market-based methods. The guidance applies to companies with operations in markets providing product- or supplier-specific data in the form of contractual instruments. If the market-based method is not applicable, organisations only need to provide the location-based figure. (WBCSD and WRI, 2015; GRI, 2018c).

Please note that 305-2-b requires the reporting organisation to indicate its "market-based" Scope 2 emissions if applicable. We will not cross-check this because whether this applies to the airline would difficult to verify.

305-2-c instructs an organisation to report, if available, the gases included in the calculation; whether CO2, CH4, N2O, HFCs, PFCs, SF6, NF3, or all. Please note that 305-2-c requests the reporter to include the gases in the calculation "if available". We will not cross-check this because whether this applies to the airline would difficult to verify.

When checking 305-2-d, check that the reporting organisation has indicated a base year, i.e. "historical datum (such as year) against which a measurement is tracked over time" (GRI, 2016c, p. 17). Note also that "in addition to the base year and the base year emissions, Disclosure 305-2 (d) requires the rationale for choosing the base year and the context for any significant changes in emissions that triggered recalculations of base year emissions" (CDP and GRI, 2017, p. 50). The report acts in accordance with this disclosure component if all of these required aspects are reported. Here, recalculations come into question if the reported Scope 2 emissions for the base year differ from the previously reported Scope 2 emissions (those published in the previous report). In other words, a rationale for the recalculations should be provided if there is a discrepancy between the reported emissions for the base year. In order to check the compliance, the previous year's reports must be checked (exceptions for this are airlines that have not reported using GRI before) Please note that 305-2-d requires the airline to report its base year[10] for the calculation, "if applicable". We will not cross-check this because whether this applies to the airline would difficult to verify.

305-2-e requires a source of the emission factors and the global warming potential (GWP) rates used, or a reference to the GWP source. Accordingly, look for the terms 'emission factor' and 'GWP' or 'global warming potential' in connection with reported Scope 2 emissions. The reported information complies with the disclosure component 305-2-e if it covers:

- the source of the emissions factors used (i.e. the source of the value that quantifies the amount of greenhouse gas emissions released per unit of activity) and;
- either a reference to the global warming potential source or the global warming potential rates, or;
- provide a stated reason for the omission of the above information.

As for 305-2-f, look for the terms: equity share, financial control, or operational control. If one of them is mentioned in conjunction with the disclosure of 305-2, the reported information follows the requirement set for this component.

305-2-g requires an organisation to release further details such as the standards, methodologies, assumptions, and/or calculation tools used to collect activity data and calculate Scope 2 emissions. Here it is important to check that the reporting organisation provides evidence (in one or more of the forms mentioned above) about how the organisation has calculated its Scope 2 emissions. The report complies with this disclosure component's requirements if such evidence is found. Note that the evidence can also be just a reference to a standard. "There are a variety of standards, methodologies and protocols available which [organisations] may use to aid in the collection and reporting of GHG data, but the large majority refer to the GHG Protocol as their basic reference" (CDP, 2017, p. 99). See the link[11] for other CDP-identified standards used to calculate emissions for an inventory (ibid.). Reports may also have separate methodology sections that provide pertinent supplementary information.

Additionally, document whether, in your opinion and if possible, an airline's reported information follows the additional requirements set for this disclosure; Describe your choice made.

[10] historical datum (such as year) against which a measurement is tracked over time

[11] (https://cdn.cdp.net/cdp-production/cms/guidance_docs/pdfs/000/001/048/original/CDP-Supply-Chain-Climate-Change-Guidance.pdf#page=99)

305-3 Other indirect (Scope 3) GHG emissions

The reporting organisation shall report the following information:

a) **Gross other indirect (Scope 3) GHG emissions[12] in metric tons of CO2 equivalent.**
b) **If available, the gases included in the calculation; whether CO2, CH4, N2O, HFCs, PFCs, SF6, NF3, or all.**
c) **Biogenic CO2 emissions in metric tons of CO2 equivalent.**
d) **Other indirect (Scope 3) GHG emissions categories and activities included in the calculation.**
e) **Base year for the calculation, if applicable, including:**
   i. the rationale for choosing it;
   ii. emissions in the base year;
   iii. the context for any significant changes in emissions that triggered recalculations of base year emissions.
f) **Source of the emission factors and the global warming potential (GWP) rates used, or a reference to the GWP source.**
g) **Standards, methodologies, assumptions, and/or calculation tools used**

[12] indirect GHG emissions not included in energy indirect (Scope 2) GHG emissions that occur outside of the organization, including both upstream and downstream emissions

Additional Requirements

2.5 When compiling the information specified in Disclosure 305-3, the reporting organisation shall:

2.5.1 exclude any GHG trades from the calculation of gross other indirect (Scope 3) GHG emissions;
2.5.2 exclude energy indirect (Scope 2) GHG emissions from this disclosure. Energy

indirect (Scope 2) GHG emissions are disclosed as specified in Disclosure 305-2;

2.5.3 report biogenic emissions of CO2 from the combustion or biodegradation of biomass that occur in its value chain separately from the gross other indirect (Scope 3) GHG emissions. Exclude biogenic emissions of other types of GHG (such as CH4 and N2O), and biogenic emissions of CO2 that occur in the life cycle of biomass other than from combustion or biodegradation (such as GHG emissions from processing or transporting

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For the GRI's reporting recommendations and guidance, refer to:

GRI 305: Emissions https://www.globalreporting.org/publications/documents/english/gri-305-emissions-2016/

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Notes on 305-3 - Other indirect (Scope 3) GHG emissions

As far as Scope 3 emissions are concerned, "organizations are required to report the gross Scope 3 emissions and indicate the Scope 3 emissions categories and activities included in the calculation. Organizations can disaggregate data by the categories and activities documented in the WRI and WBCSD 'GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard' (CDP and GRI, 2017, p. 32). The breakdown of the categories presented in the GHG Protocol is displayed in Figure 8 above.

To further describe and understand Scope 3 emissions, particularly in the context of the airline industry, IATA's handbook recommends, among other things, specifying whether the airline controls its ground operations (IATA, 2020a). In case it does not, outsourced ground operations should be reported under Scope 3.

Additionally, the handbook lists the following examples as Scope 3 emissions: "Other indirect emissions, such as the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g. T&D losses[13]) not covered in Scope 2, outsourced activities, waste disposal (including methane emissions from landfilling) etc." (p. 29, ibid.)

Using the analysis grid and checking from the GRI index page, document whether 305-3 is reported using disclosure level codes; then check the compliance of the reported information against the disclosure component requirements using appropriate codes. Finally, check whether, in your opinion, the report is following the additional requirements that provide instructions for how the given disclosure should be compiled. When checking the disclosure-level information, check the GRI Content Index, and indicate whether the company has reported the disclosure or provided any reason for omitting it or if the disclosure is left undisclosed. If the disclosure is reported, then check whether the reported information complies with the disclosure components indicated below.

305-3-a requires reporting gross other indirect (Scope 3) GHG emissions in metric tons of CO2 equivalent. To validate compliance, check (in a similar manner as for 305-1 and 305-2) that gross (total emissions deriving from all Scope 3 categories added up together) other indirect (Scope 3) GHG emissions are indicated in metric tons of CO2 equivalent ((may appear in various forms, i.e., tonnes of CO2 equivalent, tCO2eq (Factor-X, 2016), tCO2-e (Turner and Collins, 2013), and tCO2e (ICAO, 2019)). If not presented in the unit of carbon dioxide equivalent form, the given information is not presented in accordance with the disclosure requirement.

305-3-b instructs an organisation to report, if available, the gases included in the calculation; whether CO2, CH4, N2O, HFCs, PFCs, SF6, NF3, or all. Please note that 305-3-b requests the reporter to include the gases in the calculation "if available". We will not cross-check this because whether this applies to the airline would difficult to verify.

305-3-c requires reporting biogenic CO2 emissions in metric tons of CO2 equivalent. To comply with this disclosure component, the reporting organisation should either report the Biogenic CO2 emissions in metric tons of CO2 equivalent or provide a stated reason for the omission. The omission could, e.g. be "Not applicable", followed by an explanation that "there are no biogenic emissions".

As far as 305-3-d is concerned, the disclosure component asks to indicate other indirect (Scope 3) GHG emissions categories and activities included in the calculation. Here, it is important to check that the reporting organisation has not only indicated the total Scope 3 emissions (component 305-3-a) but also provided "a list of scope 3 categories and activities included in the inventory" (WRI and WBCSD, 2011, p. 119) and reported the emissions separately by each category (ibid). Such categories can be but are not limited to the ones presented in Figure 8.

When checking 305-3-e, check that the reporting organisation has indicated a base year, i.e. historical datum (such as year) against which a measurement is tracked over time" (GRI, 2016c, p. 17). Note also that "GRI requires further details for Scope 3 emissions, such as the chosen base year, the rationale for choosing the base year, emissions in the base year, and the context for any significant changes in emissions that triggered recalculations of base year emissions" (CDP and GRI, 2017, p. 32). The reported information follows this disclosure component if all of these required aspects are reported. Please note that 305-3-e requires the airline to report its base year[14] for the calculation, "if applicable". We will not cross-check this because whether this applies to the airline would difficult to verify.

305-3-f requires a source of the emission factors and the global warming potential (GWP) rates used, or a reference to the GWP source. Accordingly, look for the terms 'emission factor' and 'GWP' or 'global warming potential' in connection with reported Scope 3 emissions. The reported content complies with the disclosure component 305-5-f if it covers:

- the source of the emissions factors used (i.e. the source of the value that quantifies the amount of greenhouse gas emissions released per unit of activity) and;
- either a reference to the global warming potential source or the global warming potential rates, or;
- provide a stated reason for the omission of the above information.

305-3-g requests reporting standards, methodologies, assumptions, and/or calculation tools used. Here it is important to check that the reporting organisation describes (in one or more of the aforementioned forms) how Scope 3 emissions have been calculated. This information should be provided "for each scope 3 category" (WRI and WBCSD, 2011, p. 119). The report complies with this disclosure component's requirements if such evidence is found. Note that the evidence can also be just a reference to a standard.Notice that reports may have separate methodology sections that provide this information.

Additionally, document whether, in your opinion and if possible, an airline's reported information follows the additional requirements set for this disclosure; Describe your choice made.

[13]T&D losses represent electricity that is generated but does not reach intended customers.

[14] historical datum (such as year) against which a measurement is tracked over time

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305-4 GHG emissions intensity

Intensity ratios define GHG emissions in the context of an organisation-specific metric. Many organisations track environmental performance with intensity ratios, which are often called normalised environmental impact data.

GHG emissions intensity expresses the amount of GHG emissions per unit of activity, output, or any other organisation-specific metric.

In combination with an organisation's absolute GHG emissions, reported in Disclosures 305-1, 305-2, and 305-3, GHG emissions intensity helps to contextualise the organisation's efficiency, including in relation to other organisations.

The reporting organisation shall report the following information:

a) GHG emissions intensity ratio for the organisation.
b) Organisation-specific metric (the denominator) chosen to calculate the ratio.
c) Types of GHG emissions included in the intensity ratio; whether direct (Scope 1), energy indirect (Scope 2), and/or other indirect (Scope 3).
d) Gases included in the calculation; whether CO2, CH4, N2O, HFCs, PFCs, SF6, NF3, or all

Additional Requirements:

2.7 When compiling the information specified in Disclosure 305-4, the reporting organisation shall:
2.7.1 calculate the ratio by dividing the absolute GHG emissions (the numerator) by the organisation-specific metric (the denominator);
2.7.2 if reporting an intensity ratio for other indirect (Scope 3) GHG emissions, report this intensity ratio separately from the intensity ratios for direct (Scope 1) and energy indirect (Scope 2) emissions

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For the GRI's reporting recommendations and guidance, refer to:

GRI 305: Emissions https://www.globalreporting.org/publications/documents/english/gri-305-emissions-2016/

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Notes on 305-4 - GHG emissions intensity

"For GRI, organizations are required to report at least one GHG emissions ratio. The ratio can be for either Scope 1, Scope 2, or Scope 3 GHG emissions or a combination of both Scope 1 and 2. The selection of the most appropriate ratio denominator is left to the discretion of the organization" (CDP and GRI, 2017, p. 31)

All in all, the reporting organisation should select an appropriate ratio denominator to represent the per-unit output, activity, or any other organisation-specific metric and then calculate the intensity ratio by dividing the absolute emissions (the numerator) by the organisation-specific metric (the denominator). Here it is important to check that absolute emissions have been divided by the organisation-specific denominator.

Using the analysis grid and checking from the GRI index page, document whether 305-4 is reported using disclosure level codes; then check the compliance of the reported information against the disclosure component requirements using appropriate codes. Finally, check whether, in your opinion, the report is following the additional requirements that provide instructions for how the given disclosure should be compiled. When checking the disclosure-level information, check the GRI Content Index, and indicate whether the company has reported the disclosure or provided any reason for omitting it or if the disclosure is left undisclosed. If the disclosure is reported, then check whether the reported information complies with the disclosure components indicated below.

305-4-a requires reporting GHG emissions intensity ratio for the organisation. To check for compliance of the reported information with this component, look for 'GHG emissions intensity ratio' that "express GHG impact per unit of physical activity or unit of economic value (WBCSD and WRI, 2012), and check that the ratio has been calculated. If such a ratio is calculated and reported, the disclosure follows the requirements set by this component. As an example, emission intensity ratio can be expressed

As for 305-4-b, check that the organisation reports an organisation-specific metric (the denominator) chosen to calculate the ratio. IATA's handbook recommends that airlines report CO2 efficiency in tonnes CO2 per 100 RTK (tCO2/100RTK), where 100RTK functions as the denominator. However, it should be noted that the denominator does not need to be RTK (revenue tonne-kilometre). Airlines may have various approaches to calculating the GHG emission ratio, using different denominators such as LKT (load tonne-kilometre), ASK (available seat kilometres), and passenger kilometres (PKTs) etc. (cf. Mak et al., 2007; Van Dorland et al., 2009). The report complies with this disclosure component as long as the disclosure contains any denominator. NB! We may wish to compare and analyse the denominators used by airlines. Hence the denominators must be copy-pasted from the report to the column devoted to notes.

305-4-c requires reporting types of GHG emissions included in the intensity ratio; whether direct (Scope 1), energy indirect (Scope 2), and/or other indirect (Scope 3). To validate compliance, check that the ratio has been calculated separately for Scope 1, 2 and 3 emissions. Note that the ratios can be calculated separately for "either Scope 1, Scope 2, or Scope 3 GHG emissions, or a combination of both Scope 1 and 2" (CDP and GRI, 2017, p. 55). If a ratio for any Scope is reported separately or Scopes 1 and 2 are combined, the reported information follows the requirements set by this disclosure component.

305-4-d requires reporting gases included in the calculation; whether CO2, CH4, N2O, HFCs, PFCs, SF6, NF3, or all. To validate compliance, check that the reporting organisation has included one or more of the previous emissions in the calculations or stated a permitted reason for omitting this information (e.g. information unavailable). Note that the information may be found in a separate methods section.

Additionally, document whether, in your opinion and if possible, an airline's reported information follows the additional requirements set for this disclosure; Describe your choice made.

305-5 GHG Reduction of GHG emissions

The reporting organisation shall report the following information:

a) **GHG emissions reduced as a direct result of reduction initiatives, in metric tons of CO2 equivalent.**
b) **Gases included in the calculation; whether CO2, CH4, N2O, HFCs, PFCs, SF6, NF3, or all.**
c) **Base year or baseline, including the rationale for choosing it.**
d) **Scopes in which reductions took place; whether direct (Scope 1), energy indirect (Scope 2), and/or other indirect (Scope 3).**
e) **Standards, methodologies, assumptions, and/or calculation tools used**

Additional Requirements:

2.9 When compiling the information specified in Disclosure 305-5, the reporting organisation shall:

2.9.1 exclude reductions resulting from reduced production capacity or outsourcing;
2.9.2 use the inventory or project method to account for reductions;

2.9.3 calculate an initiative's total reductions of GHG emissions as the sum of its associated primary effects and any significant secondary effects;

2.9.4 if reporting two or more Scope types, report the reductions for each separately;

2.9.5 report reductions from offsets separately.

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For the GRI's reporting recommendations and guidance, refer to:

GRI 305: Emissions https://www.globalreporting.org/publications/documents/english/gri-305-emissions-2016/

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Notes on 305-5 - GHG Reduction of GHG emissions

Using the analysis grid and checking from the GRI index page, document whether 305-5 is reported using disclosure level codes; then check the compliance of the reported information against the disclosure component requirements using appropriate codes. Finally, check whether, in your opinion, the report is following the additional requirements that provide instructions for how the given disclosure should be compiled. When checking the disclosure-level information, check the GRI Content Index, and indicate whether the company has reported the disclosure or provided any reason for omitting it or if the disclosure is left undisclosed. If the disclosure is reported, then check whether the reported information complies with the disclosure components indicated below.

305-5-a requires reporting GHG emissions reduced as a direct result of reduction initiatives, in metric tons of CO2 equivalent. Please note the following disclosure guidance: "the organization can report reductions disaggregated by initiatives or groups of initiatives". Consequently, the GHG emissions reductions may be indicated in several places rather than just reported as aggregated in one place. When looking for the GHG emissions reductions made, and as far as compliance with 305-5-a is concerned, we are interested in seeing that the reductions are reported in the form of CO2 equivalent, which may appear in various forms, i.e., tonnes of CO2 equivalent/tCO2eq/tCO2-e/tCO2e. In the strictest sense, if the unit used is not a tonne of CO2 equivalent, the reported information is not following the disclosure requirements set by this component.

305-5-b requires reporting gases included in the calculation; whether CO2, CH4, N2O, HFCs, PFCs, SF6, NF3, or all. To validate compliance, check that the reporting organisation has included one or more of the previous emissions in the calculations or stated a permitted reason for omitting this information (e.g. information unavailable). Notice that the GHG emissions reductions may be indicated in several locations in the report.

305-5-c requires reporting base year or baseline, including the rationale for choosing it. To validate compliance, check that either base year or baseline is given. Base year refers to a "historical datum (such as year) against which a measurement is tracked over time" (GRI, 2016a, p. 16). Baseline is a "starting point used for comparisons [and in] the context of … emissions reporting, the baseline is the projected … emissions in the absence of any reduction activity". Please note that reporting either base year or baseline alone is insufficient to fully comply with this disclosure requirement component. The reporting organisation must also include the rationale for choosing it.

305-5-d requires reporting scopes in which reductions took place; whether direct (Scope 1), energy indirect (Scope 2), and/or other indirect (Scope 3). To validate compliance with this disclosure component, look for the terms Scope 1, Scope 2 and Scope 3 in conjunction with the reported GHG emissions reduction initiative(s). We can determine that if the report mentions any scope(s) in conjunction with 305-5, the information is reported in accordance with 305-5-d.

305-5-g requests to report standards, methodologies, assumptions, and/or calculation tools used. Here it is important to check that the reporting organisation describes (in one or more of the aforementioned forms) how the emissions reductions have been calculated. Note that the standards and methodologies may vary across initiatives and can, thus, be scattered across several pages. Note that the evidence can also be just a reference to a standard, e.g., "GHG Protocol Corporate Accounting and Reporting Standard". Reports may also have separate methodology sections that provide pertinent information.

Additionally, document whether, in your opinion and if possible, an airline's reported information follows the additional requirements set for this disclosure; Describe your choice made.

305-6 Emissions of ozone-depleting substances (ODS) Reporting

The reporting organisation shall report the following information:

a) **Production, imports, and exports of ODS[15] in metric tons of CFC-11 (trichlorofluoromethane) equivalent[16].**
b) **Substances included in the calculation.**
c) **Source of the emission factors used.**
d) **Standards, methodologies, assumptions, and/or calculation tools used**

[15] substance with an ozone depletion potential (ODP) greater than 0 that can deplete the stratospheric ozone layer Note: Most ODS are controlled under the United Nations Environment Programme (UNEP), 'Montreal Protocol on Substances that Deplete the Ozone Layer', 1987, and its amendments, and include chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), halons, and methyl bromide. See: (https://ozone.unep.org/treaties/montreal-protocol)

[16] CFC-11 (trichlorofluoromethane) equivalent is measure used to compare various substances based on their relative ozone depletion potential (ODP) Note: The reference level of 1 is the potential of CFC-11 (trichlorofluoromethane) and CFC-12 (dichlorodifluoromethane) to cause ozone depletion.

Additional Requirements

2.11 When compiling the information specified in Disclosure 305-6, the reporting organisation shall:
2.11.1 calculate the production of ODS as the amount of ODS produced, minus the amount destroyed by approved technologies, and minus the amount entirely used as feedstock in the manufacture of other chemicals

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For the GRI's reporting recommendations and guidance, refer to:

GRI 305: Emissions https://www.globalreporting.org/publications/documents/english/gri-305-emissions-2016/

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Notes on 305-6 - Emissions of ozone-depleting substances (ODS) Reporting

Using the analysis grid and checking from the GRI index page, document whether 305-6 is reported using disclosure level codes; then check the compliance of the reported information against the disclosure component requirements using appropriate codes. Finally, check whether, in your opinion, the report is following the additional requirements that provide instructions for how the given disclosure should be compiled.

305-6-a requires reporting on production, imports, and exports of ODS in metric tons of CFC-11 (trichlorofluoromethane) equivalent. It is worth recognising that there exist many Ozone-depleting

substances (ODS)[17] , but what is important here is that the requirement component asks an organisation to indicate the aggregated substances in a unit form of CFC-11 (trichlorofluoromethane) equivalent (or CFC-11 eq or CFC-11e). As far as our counter-accounting study is concerned, we are interested that the reported unit is CFC-11 equivalent, CFC-11 eq or CFC-11e; otherwise, the reported information is non-compliant with this disclosure component.

305-6-b requires reporting on substances included in the calculation. To validate compliance, check that a reporting airline has reported which ozone-depleting substances it has included in the calculations.

305-6-c requires reporting on the source of the emission factors used. To validate compliance, look for the source of emission factors used by searching the term 'emission factor'. Emission factor stands for a "factor allowing GHG emissions to be estimated from a unit of available activity data (e.g. tonnes of fuel consumed, tonnes of product produced) and absolute GHG emissions" (WBCSD and WRI, 2012, p. 97). We are only interested that a source of emission factor value is given; otherwise, the reported information is non-compliant with this disclosure component.

305-6-d requests to report standards, methodologies, assumptions, and/or calculation tools used. Here it is important to check that the reporting organisation provides evidence (in one or more of the aforementioned forms) for how the estimated emitted ozone-depleting substances have been calculated. Note that the evidence can also be just a reference to a standard or source for the method. Reports may also have a separate methodology section that provides pertinent information on this matter instead of informing the method in conjunction with the actual disclosure. Note that the evidence can be just a reference to a standard.

Note that the disclosure's additional requirements (clause 2.11.1) lay out a specific method for calculations: "calculate the production of ODS as the amount of ODS produced, minus the amount destroyed by approved technologies, and minus the amount entirely used as feedstock in the manufacture of other chemicals" (GRI, 2016a, p. 15). GRI's further guidance asks to describe any other approach "if [the organisation is] subject to different standards and methodologies" (ibid).

Note the above additional requirement and document whether, in your opinion and if possible, an airline's reported information follows the additional requirements; Describe your choice made.

[17](https://www.epa.gov/ozone-layer-protection/ozone-depleting-substances)

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305-7 Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions

The reporting organisation shall report the following information:

a) Significant air emissions, in kilograms or multiples, for each of the following:
i. NOx[18]
ii. SOx[19]
iii. Persistent organic pollutants (POP)
iv. Volatile organic compounds (VOC)[20]
v. Hazardous air pollutants (HAP)
vi. Particulate matter (PM)[21]
vii. Other standard categories of air emissions identified in relevant regulationsSubstances included in the calculation.
b) Source of the emission factors used.
c) Standards, methodologies, assumptions, and/or calculation tools used

Additional requirements:

2.13 When compiling the information specified in Disclosure 305-7, the reporting organisation shall select one of the following approaches for calculating significant air emissions:

2.13.1 Direct measurement of emissions (such as online analysers);

2.13.2 Calculation based on site-specific data;

2.13.3 Calculation based on published emission factors;

2.13.4 Estimation. If estimations are used due to a lack of default figures, the organisation shall indicate the basis on which figures were estimated.

[18]NOx
[19]SOx
[20]VOC stands for volotile organic compouds. In the context of aircraft jet engines, this may include e.g. methanol, acetaldehyde, acetone, benzene and toluene (Kilic, D., Huang, R., Slowik, J., Brem, B., Durdina, L., Rindlisbacher, T., Baltensperger, U. and Prevot, 2014)
[21]PM stands for particulate matter (also called particle pollution). It is a term for a mixture of solid particles and liquid droplets found in the air, which include e.g. dust and soot etc.

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For the GRI's reporting recommendations and guidance, refer to:
GRI 305: Emissions https://www.globalreporting.org/publications/documents/english/gri-305-emissions-2016/

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Notes on 305-7 - Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions

Using the analysis grid and checking from the GRI index page, document whether 305-7 is reported using disclosure level codes; then check the compliance of the reported information against the disclosure component requirements using appropriate codes. Finally, check whether, in your opinion, the report is following the additional requirements that provide instructions for how the given disclosure should be compiled. When checking the disclosure-level information, check the GRI Content Index, and indicate whether the company has reported the disclosure or provided any reason for omitting it or if the disclosure is left undisclosed. If the disclosure is reported, then check whether the reported information complies with the disclosure components indicated below.

several aviation-induced non-CO2 gasses have been identified contributing to global warming, including nitrogen oxides (NOx), water vapour, soot and sulphur (SOx) (Lee et al., 2020), it may be that only NOx qualifies currently as a significant air emission to be reported by airlines. This appears in IATA's Airline Sustainability Reporting Handbook:

> "The introduction of improved engine design over time has gradually reduced the emissions of oxides of nitrogen (NOx) and carbon monoxide (CO) and has almost completely eliminated emissions of unburned hydrocarbons (HC) and smoke. Given SOx emissions relate to the quality of jet fuel used, it is difficult for airlines to monitor these. Airlines may have influence over the quality of jet fuel used at hub stations. However, for outstations, airlines have little control. As a result, only NOx is considered as a significant emission to be reported under this metric." (IATA, 2020, p. 29)

Considering the above, as long as NOx is reported in kilograms or multiplies, the reported information complies with 305-7-a. Airlines may, nevertheless, also report other non-CO2 gasses in the categories (ii.)-(vii.). In some cases, organisations may report other air pollutants, too, as they are "regulated under international conventions and/or national laws or regulations, including those listed on an organization's environmental permits" (GRI, 2016a, p. 4).

305-7-b requires reporting on the source of the emission factors used. To validate compliance, look for the source of emission factor used by searching the term 'emission factor'. IATA (IATA, 2020a) recommends using the ICAO databank, but the source can also be something else. We are only interested that a source of emission factor values is given; otherwise, the reported information is non-compliant with this disclosure component.

305-7-c requires reporting standards, methodologies, assumptions, and/or calculation tools used. Here it is important to check that the reporting organisation provides evidence (in one or more of the aforementioned forms) for how the NOx (and other possible non-CO2 emissions have been calculated). Note that the evidence can also be just a reference to a standard or source for the method. Reports may also have a separate methodology section that provides pertinent information on this matter.

Also, note that the additional requirements set in clause 2.13 require the reporting organisation to select one of the following approaches for calculating significant air emissions: Direct measurement of emissions (such as online analysers); Calculation based on site-specific data; Calculation based on published emission factors or; Estimation (If estimations are used due to a lack of default figures, the organisation shall indicate the basis on which figures were estimated).

Additionally, document whether, in your opinion and if possible, an airline's reported information follows the additional requirements; Describe your choice made.

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