Greenwashing of oil & gas supermajors since the onset of the war in Ukraine

An analysis of the change in the public communication narratives of the top five oil & gas supermajors and an evaluation of strategies to effectively oppose greenwashing

Final report

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Executive summary

To reach international climate mitigation targets, many fossil fuel companies have increasingly announced their action towards net-zero emissions. However, multiple past studies indicate that these so-called 'green claims' by fossil fuel companies must be interpreted with caution as they simultaneously lobby for fossil-based fuel use and with that hinder development and use of renewable energy sources as fossil fuel companies. This phenomenon of poor environmental performance but positive communication about environmentally friendly corporate activities is known as greenwashing.

Since the onset of the war in Ukraine on February 24, 2022, gas and oil shortages around the world and especially in Europe have occurred as a result of sanctions on Russian oil and gas and countermeasures from the Russian government. In this context, US oil and gas companies have increased their lobbying activities regarding oil and gas, including the promotion of policies in favor of these fossil fuels. The aim of this research is therefore to investigate the change in communications of the top five oil and gas supermajors since the onset of the war in Ukraine (Chevron, ExxonMobil, BP, Shell, and TotalEnergies). Subsequently, this report provides an overview of advantages and disadvantages of different strategies to oppose greenwashing and make recommendations on how to best use the outcomes to oppose greenwashing.

To conduct the analysis, the supermajors' social media posts were first coded according to four different narratives, namely *climate solutions*, *patriotism*, *pragmatic energy mix*, and *community & economy* in consistency with the methodology used in the report *Big Oil´s Real Agenda on Climate Change* by InfluenceMap, published in 2022. An analysis was conducted to determine the change in the proportions of each narrative in the total social media communications of the supermajors. The number of claims published by all supermajors on their social media platforms decreased after the onset of the war even though the share of green claims increased. When assessed together, the number of of *pragmatic energy mix* and *patriotism* claims as a percentage in all social media output of the supermajors increased between 2021 and 2022. The percentage of *Community & economy* claims, on the other hand, decreased in the periods assessed.

Moreover, in order to determine the degree of greenwashing by the supermajors, the narratives used in their social media posts were then compared to their actual contribution towards climate change mitigation. There is a discrepancy between the share of supermajors' green claims in total social media communications and their business investments and direct policy engagements in both 2021 (as found by InfluenceMap) and 2022.

Next, a comparison was made between US and European supermajors to identify differences in the narratives used between the regions. For both 2021 and 2022, the US supermajors were more active with posting *community & economy* claims and *pragmatic energy mix* claims. European supermajors were more active with *climate solutions* claims in 2021, with no significant difference in 2022. In 2021 the US supermajors were more active with posting *patriotism* claims than European supermajors but in 2022 there was no significant difference. For changes in posting activity from 2021-2022 within supermajors, both regions decreased their *community & economy* claims, European supermajors became more active with *pragmatic energy mix* claims and *patriotism* claims, while US supermajors

became more active with *climate solutions* claims. European supermajors tended to have a higher frequency of using "Ukraine" related terminology in their posts compared to the US supermajors.

Furthermore, a state-of-the-art literature review of different strategies to oppose greenwashing was carried out, followed by an evaluation, based on their impact and their required resources. The most suitable integrated interventions our clients and Reclame Fossielvrij may take in order to leverage our findings from the communications analysis and therefore increase the potential to successfully oppose greenwashing include using the analysis results to support lawsuits against misleading advertising by the supermajors, convincing politicians that a ban on fossil fuel advertising is urgently needed, and raising investor awareness of the importance of increasing disclosure of companies' environmental impacts to subsequently make more informed investment decisions. Future research could include conducting population surveys to better assess the indirect impact of the strategies to oppose greenwashing and expert interviews to get a better understanding of the required resources. Furthermore, additional research on why the narrative trends occurred could be conducted, using the observed trends and specific narratives of the supermajors as key points to better understand the findings of this research.

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1. Introduction

1.1 Problem description

In 2015, the Paris Agreement was signed by 196 parties, with the goal to limit global warming to 1.5ºC and therefore avert devastating consequences for life on Earth. We are currently far from achieving this goal (UNFCCC, n.d.). By 2100, global warming is expected to reach 3.2°C compared to pre-industrial levels if no further climate action is taken (IPCC, 2021). The decarbonization of the economy and a transition to renewable energy sources play a central role here and are crucial to limit global warming to below 1.5°C (Tong et al., 2019).

Particularly central in this context are large oil and gas companies as the 20 biggest fossil fuel companies worldwide account for 35% of all energy-related carbon dioxide and methane emissions since 1965 (Heede, 2014; Kenner & Heede, 2021; Li et al., 2022). Subsequently, to reach international climate mitigation targets, these major companies must transition to more sustainable business models and start investing in renewable infrastructure (Li et al., 2022). Many fossil fuel companies have accepted this responsibility and increasingly announced their action towards net-zero emissions through public communication. However, multiple past studies indicate that these so-called 'green claims' by fossil fuel companies must be interpreted with caution (Li et al., 2022) as they simultaneously lobby for oil and gas use and with that hinder the development and use of renewable energy sources (e.g. Brulle, 2018). This phenomenon of poor environmental performance but positive communication about environmentally friendly corporate activities is known as greenwashing. This is also confirmed by the 2022 IPCC report which points out that the fossil fuel industry is exerting strong influence on policy processes to hinder climate action through their access to mainstream media via advertisements, shaping narratives of media reports, and the use of 'targeted lobbying and doubt-inducing media strategies' (IPCC AR6 WGIII, 2022, p.835). These strategic efforts and political influence exerted by large companies are one of the reasons for the lack of progress on climate action (Li et al., 2022).

Since the onset of the war in Ukraine on February 24, 2022, gas and oil shortages around the world and especially in Europe have occurred as a result of sanctions on Russian oil and gas and countermeasures from the Russian government (BBC News, 2022 September 30; European Council, 2022 October 6; Lawson, 2022 September 2). In this context, US oil and gas companies have increased their lobbying activities, including the promotion of policies in favor of oil and gas (InfluenceMap, 2022b). There also appeared to be a shift in communication tactics by oil and gas companies as well since the onset of the war in Ukraine. In this research, we statistically analyze whether this was the case.

1.2 Relevance of problem for the client

This project was commissioned by the activists and freelancers Aaron Pereira and Linda Knoester. They combine their expertise to work on technical sustainability projects, aiming to provide data and tools for progress towards a more sustainable world. They found support in this project from InfluenceMap,

who provided the data and assistance with the methodology, and Reclame Fossielvrij, who provided insights into strategies to oppose greenwashing.

Reclame Fossielvrij is an activist organization that opposes major polluting industries such as fossil fuel, aviation, and the automotive industry. Their initiative to combat greenwashing is driven by environmental activist campaigns. This further influences local governments to prohibit fossil fuel advertising. Reclame Fossielvrij has a particular goal of banning fossil fuel advertising in order to limit global warming and promote better global health (Reclame Fossielvrij., n.d. -c).

InfluenceMap is a think tank that tracks and analyzes corporate lobbying on climate policies globally, in response to the need for clear and objective information on the role played by corporations and industry associations. Their work is used extensively by powerful actors in finance, business, campaigns, policymaking, and the media to drive meaningful change. Their analyses offer a thorough evaluation of how corporations and their industry associations affect the legislation required to combat climate change. InfluenceMap aims to transparently communicate results to the public, investors and other stakeholders (InfluenceMap n.d. -d). They are interested in offering evidence-based evaluations that help counteract corporate greenwashing and thus their efforts to obstruct climate action.

In September 2022, InfluenceMap published a report about the green claims made by 5 oil supermajors as compared to their business operations and lobbying activities (InfluenceMap, 2022a). The report is an extensive investigation of oil and gas firms classified as supermajors displaying a multimillion-dollar scheme to disguise themselves as proactive in the face of the climate change emergency during 2021. Intentions of supermajor capital investment were found to contradict their environmental policy initiatives and marketing claims, further highlighting that none of the supermajors had matched the objectives of the Paris Agreement with their participation in climate policies.

InfluenceMap's 2022 report only looked at communications data from 2021 and it was noted how there appeared to be a shift in communication tactics since the invasion of Ukaine. With this research, we aim to check if this indeed was the case.

Aaron and Linda and Reclame Fossielvrij can further use this study to gain insights in how to best oppose greenwashing based on the recommendations that are given.

1.3 Definition of terminology used

The following section defines three terms that are crucial for this report, namely *green claims*, *greenwashing*, and *supermajors*.

Supermajors are a group consisting of the five largest multinational, investor-owned oil and gas companies, namely ExxonMobil, BP, Shell, TotalEnergies and Chevron. The companies were chosen based on their size indicated in the Forbes 2000 list, only considering investor-owned companies (InfluenceMap, 2022a). Whenever the term *supermajors* is used in this report, it refers only to these five companies.

Greenwashing is present when the green claims made by a company are inconsistent with the companies' plans for capital investment in their business, the policy engagement activities of the company and its industry associations on climate change. In this report, it will be measured by comparing the share of a company's green claims with its business operations and direct policy engagement (based on InfluenceMap, 2022a).

To fully understand the concept of greenwashing, the term *green claims* needs to be defined. *Green claims* are claims made in company communications that highlight support, investments or any other form of commitment to emissions reduction activities, transitioning the energy mix, or fossil fuels as 'green' or 'low-carbon' solutions (InfluenceMap, 2022a, based on Miller & Lellis, 2016). *Green claims* include statements that the company is engaged in lowering their harmful impacts towards the environment whilst still maintaining their business (InfluenceMap 2022a). In other words, green claims can either be consistent with actual business operations, or not. In the latter case, the green claims are called greenwashing.

1.4 Critical analysis of the term 'greenwashing'

As the awareness of unsustainable practices becomes more explicit and attention is drawn to the environmental harms perpetrated by major companies, various ways of defining greenwashing have been on the rise (Markham, 2014; De Freitas Netto et al., 2020). Given the multifaceted nature of greenwashing, there is no single rigid definition of the term, but the extensive literature on the topic provides adequate interpretations (Lyon & Montgomery, 2015).

The term greenwashing was coined in 1986 by environmentalist Jay Westerveld, in relation to the hotel industry, where the reuse of towels was falsely promoted as a water saving strategy (Orange and Cohen, 2010; de Freitas Netto et al. 2020; Becker-Olsen and Potucek, 2013). Greenwashing was then defined as "The act of disseminating disinformation to consumers regarding the environmental practices of a company or the environmental benefits of a product or service" (Nemes et al., 2022, p.10).

With an increasingly active debate on greenwashing, a distinction of greenwashing in two main categories was made in literature: attention deflection and decoupling (Siano et al., 2017). Attention deflection is about concealing contentious aspects in corporate sustainability communications, for example by using nature images to make a message seem more green than it is (Siano et al., 2017). This has also been called executional greenwashing (De Freitas Netto et al., 2020). Decoupling is about companies taking symbolic action, while not adjusting company policies or taking other substantial action (Siano et al., 2017). For example, companies do this by joining in on voluntary programs or initiatives by NGOs, which can make the company look green and proactive on the sustainability front, while at the same time no real changes in the company's policies are made, making it a symbolic rather than substantive action.

Investopedia, a financial content website aimed at informing new and experienced investors, defines greenwashing as "the act of providing the public or investors with misleading or outright false

information about the environmental impact of a company's products and operations" (Investopedia, 2022).

While greenwashing has been majorly focused on mass campaigns, greenwashing can manifest in any medium, such as on company websites and sustainability reporting (Markham, Khare & Beckman, 2014). Additionally, greenwashing is often thought to be done by businesses but it can also be performed by NGOs and governments, whether intentionally or unintentionally (Nemes et al., 2022). Additionally, NGOs and governments can act as partners in corporate greenwashing. In order to detect and distinguish different forms of greenwashing, TerraChoice, a Canadian environmental marketing agency, has published a report listing seven sins of greenwashing, which has been cited in literature as a helpful tool (see Table 1, Markham, Khare & Beckman, 2014; de Freitas Netto et al. 2020).

Table 1. The seven sins of greenwashing (Markham, Khare & Beckman, 2014; de Freitas Netto et al. 2020)

Sin	Description
The sin of the hidden trade-off	Suggesting a product is 'green' by referring to very narrow product attributes without giving attention to other important environmental issues.
The sin of no proof	Making environmental claims that cannot be validated by easily available supporting information.
The sin of vagueness	Using vague terms, such as "green" or "all natural".
The sin of worshiping false labels	Giving the impression of a third-party environmental endorsement or certification when, in fact, no such sanctioning exists.
The sin of irrelevance	an environmental claim that may be truthful but is unimportant or unhelpful for consumers seeking environmentally preferable products. 'CFC-free' is a common example, since it is a frequent claim despite the fact that CFCs are banned by law.
The sin of lesser of two evils	Making environmental claims that are true within the product category, but distract the public from greater environmental impacts of the category. For example, fuel-efficient sport-utility vehicles.
The sin of fibbing	Making false environmental claims.

These seven sins of greenwashing have been broadened by Scanlan (2017) to include more focus on the sins of oil and gas companies. These include false hopes, broken promises (such as the promise that fracking will lift up the poor, while evidence shows the opposite), injustice, hazardous consequences and profits over people and the environment. These added sins of greenwashing can be categorized as attention deflection strategies (Siano et al., 2017) as these strategies are about remaining silent on the negative impacts of fracking and the impacts on communities.

With increased pressure on companies to perform well on corporate sustainability, and with that also the rise of greenwashing, greenwashing activism has come into play too. With that, greenwashing is not entirely without risk for organizations (Lyon & Montgomery, 2015), and naming and shaming is

actively being done by activists and environmental NGOs such as Reclame Fossielvrij, as well as Greenpeace, Milieudefensie and ClientEarth. Greenwashing activism aims to get polluting companies to comply with their environmental promises and to point out misinformation by polluting companies (Dixon, Martin & Nau, 2016). Green claims, when pointed out, can backfire and lead to reputational damage for the company (Lyon & Montgomery, 2013; Lekakis, 2017). Because of this, the work of activists in this domain is aimed at bringing greenwashing to light and keeping companies accountable (Lyon & Montgomery, 2015), or "naming and shaming into compliance" (Dixon, Martin & Nau, 2016, pp.66).

InfluenceMap compares public communications with business operations and policy engagement of a company. It can be said that the two categories as presented by Siano et al. (2017) are incorporated in this assessment. The focus of InfluenceMap can be seen as narrow when considering the typology of the seven sins by TerraChoice and the extended typologies by Scanlan (2017), which pertain that greenwashing does not have to be about making green claims but also about keeping silent on the non-green aspects of the company, as well as that greenwashing can take place beyond claims in the sense of using misleading imagery. Lastly, it needs to be taken into account that greenwashing can take place in various media outlets, not only mass-media campaigns, and that it can take place by both companies, as well as by NGOs and governments.

1.5 Research aim

The aim of this research is to investigate the change in communications of the top five oil and gas supermajors since the onset of the war in Ukraine. Subsequently, we will provide an overview of advantages and disadvantages of different strategies to oppose greenwashing and make recommendations on how to best use the outcomes in the fight against greenwashing. In this context, the following research questions will be examined:

In what way has the greenwashing of the top five oil and gas supermajors changed since the onset of the war in Ukraine, and how can the greenwashing of oil and gas supermajors be opposed?

- Sub-question 1: Have the narratives in the public communications of the top five oil and gas supermajors changed since the war in Ukraine? If so, how?
- Sub-question 2: How do the supermajors' claims compare to their business investments and direct policy engagements?
- Sub-question 3: What differences in public communication can be observed between the US-based and Europe-based supermajors?
- Sub-question 4: What strategies and tools can best be used to oppose the greenwashing of the supermajors?
    - Sub-question 4.1: What are strategies and tools used by Reclame Fossielvrij to oppose greenwashing, and what other strategies can be found in the literature?
    - Sub-question 4.2: What are the pros and cons of these strategies and tools used to oppose greenwashing?

2. Methods

The methodology is divided into two parts. The first part is a public communications analysis, which covers sub-questions 1, 2 and 3. The second part is a greenwashing governance analysis (sub-question 4), divided into two parts (sub-questions 4.1 and 4.2).

2.1 Public communications analysis (part 1)

Sub-question 1: Have the narratives in the public communications of the top five oil and gas supermajors changed since the onset of the war in Ukraine? If so, how?

The public communications examined in this report included the social media accounts of BP, Shell, Chevron, ExxonMobil, and TotalEnergies (Table 2) in the time period between February 24, 2022 (the date of the onset of the Ukraine war) until August 31, 2022. That way, the analysis covers six complete months after the onset of the war, as was advised by InfluenceMap. The social media accounts included in Table 2 include all the official company accounts and CEO accounts that contained new posts between February 24 and August 31 in 2021 and/or 2022. It is important to note that Shell's Facebook and Instagram contained three posts in total in 2021 but had no new posts in the analyzed time period in 2022. Only the main accounts of the supermajors' companies have been considered for the analysis of the narratives. Regional accounts, subsidiaries and press release accounts have not been included in the analysis.

Table 2.
Social media sources that were used for analyzing the public communications of each of the supermajors. This table indicates the social media accounts that had new posts in the analyzed time frame (February 24 - August 31) in 2021 and/or 2022. * indicates accounts that only had new posts in 2021, not 2022.

Social media platform	BP	Shell	Chevron	ExxonMobil	TotalEnergies
Facebook	X	X*	X	X	X
Instagram	X	X*	X	X	X
Twitter	X	X	X	X	X
LinkedIn	X	X	X	X	X
YouTube	X	X	X	X	X
CEO social media					
CEO Instagram	X				
CEO Twitter					X
CEO LinkedIn	X	X	X		X

The first step in this part of the report was coding the supermajors' social media posts according to the narratives communicated in the posts. In order to ensure consistency with InfluenceMap (2022a), the same methodology for coding the narratives in the public communications of the supermajors was used. Each evidence item from all the social media platforms in Table 2 in the analyzed time frame was coded according to the narratives in Table 3. One evidence item could contain several narratives. To remain consistent with InfluenceMap (2022a), new narratives were not included; instead, prominent trends were noted separately.

Table 3. Narratives used in the coding of the supermajors' social media posts, based on InfluenceMap (2022a).

Type of claim	Narrative	Description
Green claim	Climate solutions (G)	Claims emphasizing company commitment, support for or investments in emissions reduction activities, transitioning the energy mix, or 'green' fossil fuels
Oil & gas claim	Community & economy (C)	Claims about the benefits of the oil & gas industry to economies national or local, jobs, philanthropy, and social issues such as gender equality or sustainable development
	Pragmatic energy mix (P)	Claims about the benefits of oil & gas for affordability, reliability and maintaining quality of life (e.g., the use of oil and gas to develop plastic-based products such as toothbrushes)
	Patriotism (S)	Claims about the benefits of oil & gas or the oil & gas industry to energy security, energy independence, or energy identities/histories)
Not relevant	--	Does not fit with the typology or not relevant

Intercoder reliability test

Prior to analyzing the data, the researchers conducted an intercoder reliability test (ICR) as suggested by InfluenceMap. An ICR evaluates consistency in coding between researchers by producing a score (Neuendorf, 2002). In the present case, a Fleiss' kappa Score of 0.70 was used as the minimum threshold for passing the ICR test (Fleiss, 1971; Fleiss et al., 2003). This threshold was advised by the statistical team at InfuenceMap based on academic literature.

Prior to beginning the ICR test, the researchers received training on the coding methodology by InfluenceMap. During this training, the researchers were asked to use the general narratives given in Table 2 (i.e., G, C, P, and S) rather than the more specific narratives used by InfluenceMap (2022a; e.g., P1, P2, P3). This was done in order to increase the chances of achieving the necessary agreement between coders to pass the ICR test more quickly.

In the first round of the ICR test, all six researchers coded the posts in Equinor's official Twitter account for June, July, and August 2022. The first round of the ICR test (n = 22) yielded a Fleiss' kappa score of 0.55, which was below the minimum threshold. Individual scores were also calculated for each of the researchers to determine their coding consistency with each other researcher. After the first round of the ICR test, the researchers convened to discuss their coding discrepancies and completed a second round of the ICR test, this time analyzing Equinor's Twitter posts between March and May 2022. This round (n = 17) yielded a Fleiss' kappa score of 0.60, which was still below the minimum threshold.

After this round, the researchers reconvened to discuss their coding discrepancies. The main discrepancies were found to be in coding the *pragmatic energy mix* and *patriotism* claims (Table 2), so the researchers established a set of rules to help distinguish these categories consistently and accurately, according to the category definitions used by InfluenceMap (2022a). Moreover, the third round of the ICR test was completed in pairs rather than individually. For the third round of the ICR test, the researchers analyzed Equinor's Twitter posts in the period between December 2021 and February 2022 (n = 25). This round yielded a Fleiss' kappa score of 0.90, allowing the researchers to proceed to coding the data for the report (after receiving confirmation from the clients). It should be noted that the sample used in the final round of the ICR test did not include any *patriotism* claims; however, as the researchers established common guidelines around these claims, this was considered sufficient by the clients (Aaron and Linda).

Specific coding standards

The following section outlines some specific standards that were relevant across social media platforms:

- Duplicate posts: Some posts were duplicated and posted in the original language of the company as well as in English; for these cases, only one post was analyzed, given that the content was identical.

- Translation: If a post was only available in a foreign language, the content was translated to English using online translation tools.

- Images: If a post contained images, these were only analyzed if they contained written messages (Figure A2 Annex A). This is because the methodology for analyzing the claims provided by InfluenceMap was specifically devoted to written/verbal communication.

- Re-posts: Posts originally written by a different account that were shared by the supermajor/CEO (e.g., retweets) were only coded if additional comments were made on top of the original post. In this case, the content of the original post was also coded. Re-posts without additional commentary were not included in the analysis.

- Attachments: If posts contained attached media (pictures, video, audios, etc.) the content of the attachment was assessed if it was viewable on the social media platform. Links and attachments leading to external media were not considered.

Additionally, below are standards that were developed regarding particular social media platforms:

Twitter:

- Threads: Threads were considered a single claim if they were published on the same date. Since Twitter limits the number of characters per post, threads are quite a common feature used to convey larger messages. If a thread was added to a post at a later time, then the thread was considered a separate claim from the original message.

YouTube:

- The content of each entire video was screened for narratives.
- The verbal commentary throughout the videos was coded, as well as the title, comments, descriptions and any text appearing throughout the video.

Instagram:

- Collab post feature: Instagram offers the feature of collaborative posts (See Figure A1 Annex A). For this evidence, the content was only analyzed if the supermajor/CEO was the one who published the post. This can be seen on top of the post where the actual author appears first.

Analysis of the data

After the completion of the coding process, the share of each type of narrative in the total social media communications of the supermajors was determined. This was compared to the findings of InfluenceMap (2022a) for the same time period in 2021 (i.e., February 24, 2021 - August 31, 2021) to determine whether there was a difference in the claims made between the time periods. Pearson's chi-squared test was used to determine whether the change in the percentage of *patriotism*, *pragmatic energy mix*, *community & economy*, and *climate solutions* (i.e., green) claims between 2021 and 2022 was statistically significant. This analysis was performed for all supermajors as well as per supermajor. For all statistical analyses in the report, a significance level of $p \leq 0.05$ was used. All results of statistical significance tests can be found in Annex D.

Moreover, the overall frequency of communication was examined. This was done by comparing the total number of posts between 2021 and 2022, as well as the total number of posts per supermajor. Additionally, 7-, 14-, and 28-day running averages were constructed to examine the frequency of posts per day over time. These were used to determine notable trends and/or patterns. All figures illustrating the running average trends over time are included in Annex C. Given that running averages are constructed by averaging evidences with past evidence determined in the period chosen, the results for running averages skip the initial period (i.e., the first 7 days for the 7-day averages, the first 14 days for the 14-day averages, and the first 28 days for the 28-day averages).

Sub-question 2: How do the supermajors' claims compare to their business investments and direct policy engagements?

In order to determine the degree of greenwashing by the supermajors, the narratives used in their social media posts were compared to their actual contribution towards climate change mitigation. In the scope of this research, due to time constraints, it was not foreseen to perform original research into the supermajors' activities; therefore, for this analysis, the present report uses the companies' business operations and direct policy engagements from InfluenceMap (2022a) as a measure of their low-carbon activities.

Business operations include the forecasted percentage of capital expenditure (CAPEX) dedicated to low-carbon investments in 2022, based on the companies' disclosures (InfluenceMap, 2022a, p. 24). The definition of 'low-carbon' varies across supermajors, and includes renewables, biofuels, hydrogen, carbon capture and storage, carbon offsetting, and sometimes fossil-gas related activities (InfluenceMap, 2022a, p. 25). The supermajors rarely disclose how their investments are distributed across these categories (InfluenceMap, 2022a, p. 25). Business operations also include oil, gas, and renewable production forecasts up to 2026 (compared to a 2021 baseline), based on data from a third-party provider, Asset Resolution (InfluenceMap, 2022a, p. 24).

InfluenceMap's LobbyMap platform assesses the extent of companies' support or opposition to legislation and regulation that are aligned with Paris Agreement targets (InfluenceMap, 2022a, p. 30). In the present report, direct policy engagements are assessed based on InfluenceMap's LobbyMap Performance Band, which is "the full measure of a company's climate policy engagement, accounting for both its own engagement and that of its industry associations'' (InfluenceMap, 2022a, p. 31). There are 16 Performance Bands, ranging from A+ to F (LobbyMap, n.d. -b). Performance Bands A+ to B indicate general support for climate policy aligned with the targets of the Paris Agreement, whereas Bands D to F indicate increasing misalignment with Paris Agreement targets (LobbyMap, n.d. -b).

These indicators were then compared to the narratives in the public communications of the companies as determined in sub-question 1. The level of discrepancy between green claims (Table 2) and the companies' low-carbon business investments and positive climate policy engagements determined the degree of greenwashing of the companies. This degree of greenwashing was then compared to the findings of InfluenceMap (2022a).

Sub-question 3: What differences in public communications can be observed between the US-based and Europe-based supermajors?

A further analysis on the differences between the greenwashing done by European supermajors (Shell, TotalEnergies, and BP) and US supermajors (Chevron and ExxonMobil) was carried out. Pearson's chi-squared test was used to determine whether the percentage of *patriotism*, *pragmatic energy mix*, *community & economy*, and *climate solutions* claims of US supermajors was different from the percentage of the corresponding claims of European supermajors in 2021 and 2022, respectively. Moreover, Pearson's chi-squared test was used to determine whether the percentage of *patriotism*, *pragmatic energy mix*, *community & economy*, and *climate solutions* claims varied between 2021 and 2022 for US and European supermajors, respectively.

A comparison of posting frequency between US and European supermajors was also conducted to determine whether European supermajors posted more or less frequently than US supermajors in 2021 and 2022, respectively. Additionally, 7-, 14-, and 28-day running averages of daily posting frequency were compared for US and European supermajors to examine whether there were any notable differences in trends in daily posting frequency between the regions (see the methods for sub-question 1 for more details regarding the running averages).

Finally, an analysis was conducted of the difference in rhetoric between US and European supermajors, based on supplementary notes taken during the coding process. Particular attention was given to posts that explicitly referred to the war in Ukraine. The number of references to the war was then compared between regions.

2.2 Governance of greenwashing (part 2)

Sub-question 4: What strategies and tools can best be used to oppose the greenwashing of the supermajors?

4.1: What are strategies and tools used by Reclame Fossielvrij to oppose greenwashing, and what other strategies can be found in the literature?
4.2: What are the pros and cons of these strategies and tools used to oppose greenwashing?

To answer sub-question 4.1, a state-of-the-art literature review of the different strategies used by Reclame Fossielvrij and other organizations to fight greenwashing was carried out. Academic literature, gray literature and legal documents were considered to carry out the state-of-the-art literature review. Keywords such as "greenwashing", "greenwashing fighting strategy", "investor fraud", "misleading advertisement", "ESG disclosure" were used to narrow down the search. Additionally, an interview with Charlotte Braat from Reclame Fossielvrij was conducted to gain additional insights into strategies and tools used by the organization.
Following, an evaluation of the different strategies was done to answer subquestion 4.2. Three different variables were evaluated, to identify advantages and disadvantages, whereas the third variable was split into three variables:

1. **Direct impact:** The strategy is considered to have a direct impact when the company reduces their greenwashing activities as a result of the implementation of the strategy. Additionally, the success rate of the strategy, which is the probability that the strategy achieves its goal, is considered.

2. **Indirect impact:** The strategy is considered to have an indirect impact when it succeeds in raising awareness of the problem of greenwashing among the general population or the targeted population, and/or damaging the reputation of companies involved in greenwashing.

3. **Resources:** How many resources are needed to carry out the strategy?
    a. **Time:** How much time is required to implement this strategy?
    b. **Money:** How much money is required to implement this strategy?
    c. **Expertise/skills:** What kind of expertise/skills are required to implement this strategy?

After the qualitative evaluation of the strategies based on the five criteria, a score (+, +/-, or -) was assigned to each criterion of each strategy. A plus (+) was assigned if the criterion is an advantage of the strategy, a plus-minus (+/-) was assigned if the criterion has aspects of both advantages and disadvantages or could be an advantage or a disadvantage, depending on the specific circumstances,

and a minus was assigned if the criterion is a disadvantage of the strategy. A detailed explanation can be found in Table 4. Additionally, the evaluated criteria for each strategy were assigned a color. Green was used if we evaluated the criterion as an advantage of the strategy (+), red if we evaluated it as a disadvantage (-) and yellow if it shows aspects of both (+/-). The assessment of the strategies is based on our expert judgment. However, this is a subjective estimation and is only intended to give an indication of how useful they are to oppose greenwashing.

Table 4. Description of the evaluation criteria

Criterion	+	+/-	-
Direct impact	The strategy has a high direct impact on the greenwashing activities of polluting companies and a high success rate	The strategy has a medium direct impact on the greenwashing activities of polluting companies/a high direct impact but a low success rate/a low direct impact but a high success rate	The strategy has a low direct impact on the greenwashing activities of polluting companies and a low success rate
Indirect impact	The strategy has a high impact on raising awareness of greenwashing in the general population or the targeted population, and/or on damaging the reputation of companies involved in greenwashing	The strategy has a medium impact on raising awareness of greenwashing in the general population or the targeted population, and/or on damaging the reputation of companies involved in greenwashing	The strategy has a low impact on raising awareness of greenwashing in the general population or the targeted population, and/or on damaging the reputation of companies involved in greenwashing
Resources: Time	The implementation of the strategy requires little time	The implementation of the strategy requires some time	The implementation of the strategy requires a lot of time
Resources: Money	The implementation of the strategy requires little financial resources	The implementation of the strategy requires some financial resources	The implementation of the strategy requires a lot of financial resources
Resources: Expertise/Skills	The implementation of the strategy requires little expertise or skills	The implementation of the strategy requires some expertise or skills	The implementation of the strategy requires a lot of expertise or skills

2.3 Method of integration

The report is divided into two parts. In the first part (SQ 1 to 3), the extent of greenwashing done by the oil and gas supermajors since the onset of the war in Ukraine was examined. Here, we first analyzed the changes in communication by the supermajors in sub-question 1. The results then served as an input for sub-question 2, in which we compared the narratives identified in sub-question 1 to the investments and policy engagement of the supervisors. Afterwards, the results of sub-question 2 were used in sub-question 3 to identify differences in the greenwashing between Europe and US-based supermajors. The second part of the report (SQ 4) then focuses on addressing different strategies and tools to successfully oppose the supermajors' greenwashing. An overview of the relationships between the different research questions and the outcome is shown in Figure 1. The result of the

research will serve as input for a publication on the website and social media of Aaron and Linda, and the compilation and assessment of strategies and tools to oppose greenwashing can be used by Reclame Fossielvrij in their future work.

Figure 1.
Flow diagram of the research. Light green indicates the communications analysis (part 1), and light orange indicates the portion of the report dedicated to the governance of greenwashing (part 2).

The results of part 1 and part 2 were integrated by connecting key insights from the analysis of the supermajors greenwashing to the identified strategies to oppose greenwashing. Here, the strategies identified in part 2 of the report were applied to the findings in part 1 by discussing how the conclusions drawn in part 1 can best be instrumentalized for the implementation of the strategies to further strengthen their success rate. The results of the integration are presented by discussing how key insights from the communications analysis in part 1 can be useful to support some of the strategies to oppose greenwashing identified in part 2, based on how promising they are and how well they link to the results from the communications analysis. This lays out a roadmap for our clients and Reclame Fossielvrij on how to best use the results of this report in their future work in the fight against greenwashing.

3. Results

The results of the project aim at answering the main question: *In what way has the greenwashing of the top five oil and gas supermajors changed since the onset of the war in Ukraine?* The main question is divided into four sub-questions that are addressed in two parts: (1) a public communications analysis (sub-questions 1-3) and (2) the governance of greenwashing (sub-question 4). Each sub-question is addressed in a separate chapter.

3.1. Comparison of public communication of the supermajors since the onset of the war in Ukraine

Sub-question 1: Have the narratives in the public communications of the top five oil and gas supermajors changed since the onset of the war in Ukraine? If so, how?

Based on the report published by InfluenceMap (2022a), it has been shown that the oil and gas supermajors rely on greenwashing in their public communication in 2021. The results on whether the social media narratives of the supermajors have changed from 2021 to 2022, specifically after the onset of the war in Ukraine, are presented in this section.

Change in total number of claims

Overall, the number of claims published by all supermajors in their social media platforms decreased from 1478 to 1083 between 2021 and 2022. This pattern can be observed in the public communication of BP, Chevron, Total Energies, and Shell, while ExxonMobil was the only supermajor with an increase in the total number of claims. In conclusion, the supermajors have become less active in their public communication platforms since the onset of the war in Ukraine.

Change in the overall proportions of claims

There has been a change in the proportion of the narratives between 2021 and 2022 (Figure 2). Green claims include narratives about *climate solutions* (G), while oil and gas claims include narratives about *community & economy* (C), *pragmatic energy mix* (P), and *patriotism* (S; Table 2). Throughout the rest of the report, the different narratives can be referred to by their abbreviations (C, G, P, S) for the sake of simplicity. Since green claims only include narratives about *climate solutions* (Table 2), these two terms are used interchangeably throughout the report.
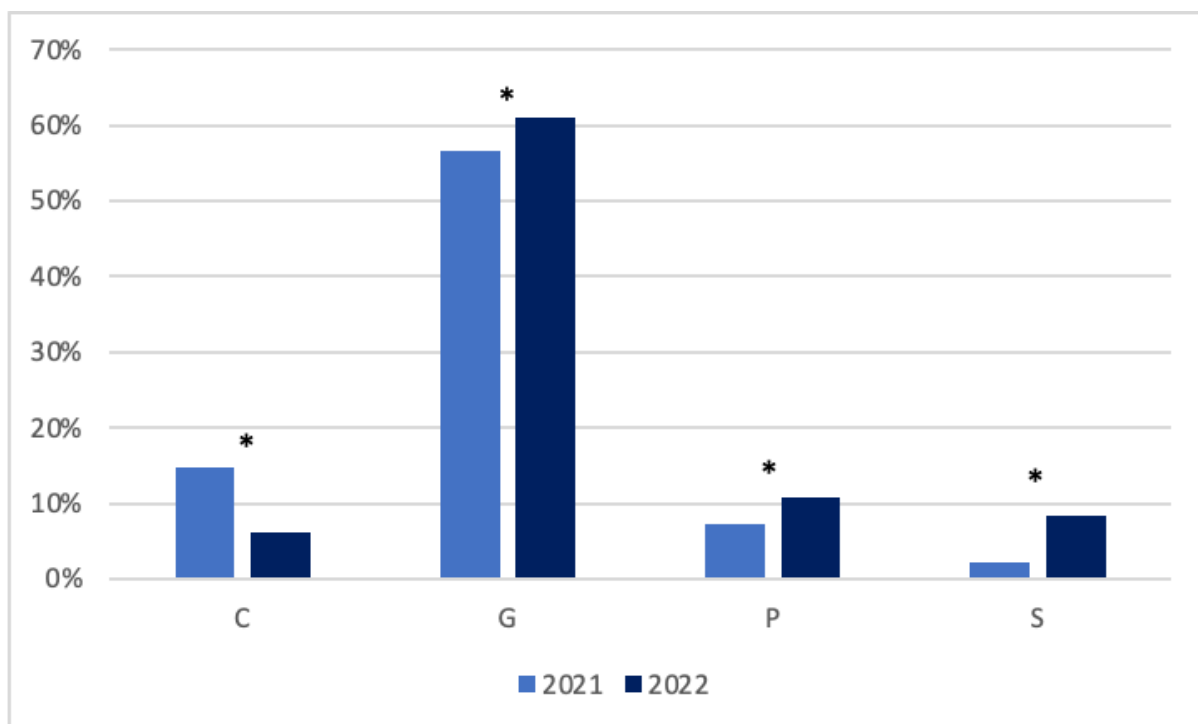
Figure 2.
Share of claims deployed by the supermajors in their 2021 and 2022 public communications. (*) indicates a statistically significant change in the share of claims in the total social media posts between 2021 and 2022 ($p \leq 0.05$).

When taken together, there appears to be a significant increase in the percentage of greenwashing claims between 2021 and 2022. There have been increases in the shares of P claims (7.4% to 10.8%), and S claims (2.1% to 8.4%) between 2021 and 2022 for all supermajors combined. C claims, on the other hand, decreased from 14.5% of the total shares in 2021 to 6.1% in 2022. It is important to mention that the percentages of different categories of claims will not necessarily sum to 100%, because some posts contained claims from more than one category and some contained claims from no category.

To gain more insight into whether these narratives changed across the board, we analyzed the claims per supermajor and, in section 3.3, per region.

Change in the proportion of claims by supermajor

Presented below are the shares of each of the claims made by each of the five supermajors in their total public communication between 2021 and 2022 (Table 5).

ExxonMobil and TotalEnergies had higher percentages of green claims compared to the average of all supermajors (61.1%) in 2022. The percentage of green claims from ExxonMobil, Shell, and TotalEnergies were above the overall average for all supermajors in 2021. Shell had a statistically significant reduction of green claims within its communication (their green claims decreased from

72.1% in 2021 to 53.1% in 2022). ExxonMobil on the other hand, saw the largest growth in share of green claims for its evidence, increasing from 60.2% to 78.1% between the two years assessed.

Regarding C, P, and S claims in the assessed periods, Chevron had the highest share of C claims among all supermajors for 2021 (24.7%) and 2022 (16.7%). ExxonMobil has the highest share of P claims for 2022 (21.3%). Chevron had the biggest share of S claims in 2021 with 7.4%, while Shell occupied the first position in 2022 with 16.3%.

Table 5. Shares of narratives in the public communication of supermajors in 2021 and 2022. (*) indicates a statistically significant change in the share of claims in the total social media posts between 2021 and 2022 (p ≤ 0.05).

	2021				2022			
Supermajor	C (%)	G(%)	P(%)	S(%)	C (%)	G(%)	P(%)	S(%)
bp EUR	16.7*	55.2	0.2*	0.0*	4.6*	60.4	8.5*	10.6*
Chevron US	24.7*	40.7	13.3	7.4	16.7*	45.5	12.6	5.3
ExxonMobil US	22.1*	60.2*	15.9	2.7	3.6*	78.1*	21.3	8.9
Shell EUR	7.4	72.1*	0.0*	0.8*	5.1	53.1*	7.1*	16.3*
TotalEnergies EUR	5.0*	66.0	9.4	0.0*	0.3*	67.9	6.6	5.9*
All supermajors	14.8*	56.6*	7.3*	2.1*	6.1*	61.1*	10.8*	8.4*

For examining posting trends over the timeframe, 28-day running averages are utilized in the result sections. The 28-day period presents a smoother display of the averaged dataset, enabling a better comparison between the two periods assessed. The number of evidence made by all supermajors decreased and figure 3 shows that the frequency of posting in 2022 hardly ever surpassed that of 2021. Even though the posting frequency of the supermajors increased in the summer months of 2021 (July and August), this trend was not observed in 2022.

Figure 3.

28-day running average of the daily posting frequency, i.e. the number of posts across all examined platforms per day, for all supermajors in the assessed period in 2021 and 2022.

Overall, the comparison of the public communication of the supermajors reveals that in general, the companies have been making fewer claims since the onset of the conflict. However, the share of green claims in general has increased since the onset of the war in Ukraine. The 28-day running average confirms the aforementioned trends by showing a reduced frequency in posting compared to the pre-conflict (2021) timeframe.

3.2 Comparison of claims to actual low-carbon activities

Sub-question 2: How do the supermajors' claims compare to their business investments and direct policy engagements?

This subchapter is dedicated to comparing the claims made by the supermajors in their social media communications to their low-carbon business operations and direct policy engagement, based on InfluenceMap (2022a), to determine their degree of greenwashing.

Business operations

In general, InfluenceMap (2022a) found that, in 2021, the supermajors' public communications were inconsistent with their business investments and policy engagements. This is supported by Li, Trencher & Asuka (2022), who found that the magnitude of oil and gas majors' low-carbon business investments and actions does not match their discourse, which has a strong emphasis on 'climate,' 'low-carbon,' and 'transition.' Particularly, InfluenceMap (2022a) found that 60% of the supermajors' public

communications in 2021 contained at least one green claim, and only 23% contained claims promoting oil and gas (out of 3,421 total claims analyzed for the report). However, only 12% of the supermajors' 2022 CAPEX was forecasted to be dedicated to low-carbon activities (out of $87-96 billion expected CAPEX in 2022; Figure 4).

Moreover, all companies were forecasted to increase oil production up to 2026, aside from BP, whose oil production was expected to remain fairly constant (Table 6). Gas production was expected to increase for ExxonMobil and Shell and remain constant or decrease for TotalEnergies, Chevron, and BP. Equity-owned renewables capacity was expected to increase up to 2026 for Chevron, Shell, and BP and remain at 0 GW for TotalEnergies and ExxonMobil (Table 7). Do note that these forecasts were based on assets owned as of Q4 2021 and do not account for changes since then, such as Shell divesting from the Permian Basin.

Table 6.
Oil and gas production for 2026 for each of the supermajors, compared to a 2021 baseline (2021 production is considered 100%; estimated based on InfluenceMap, 2022a, p. 28).

	Oil production (%)	Gas production (%)
BP	100	96
Chevron	122	98
ExxonMobil	118	107
TotalEnergies	129	100
Shell	110	103

Table 7.
Renewables capacity projection for 2026 compared to a 2021 baseline (estimated based on InfluenceMap, 2022a, p. 27).

	2021 (GW)	2026 (GW)
BP	1.5	2.8
Chevron	0	0
ExxonMobil	0	0
TotalEnergies	4.2	12.9
Shell	2.3	7.8

Analyzing each individual supermajor separately, only ExxonMobil increased significantly, as for BP, Chevron, and TotalEnergies, the difference in green claims between 2021 and 2022 was not statistically significant ($p > 0.05$). This could be due to a small effect size or too few posts to show statistical significance. Interestingly, Shell had an overall significant decrease in the share of green

claims in 2022 (Figure 4). However, taken together, the total share of green claims in the supermajors' social media communications in the period February 24 - August 31, 2022 increased compared to the same period in 2021 (see section 3.1), and the low-carbon investments were assumed to remain consistent with InfluenceMap (2022a).

It is important to note that the supermajors are quite vague in what they consider to be 'low-carbon' investments, and some categorize fossil-fuel related investments as 'low-carbon' investments (InfluenceMap, 2022a, p. 25). Therefore, it is likely that CAPEX dedicated to non-fossil technologies is even lower than what is presented in Figure 4.
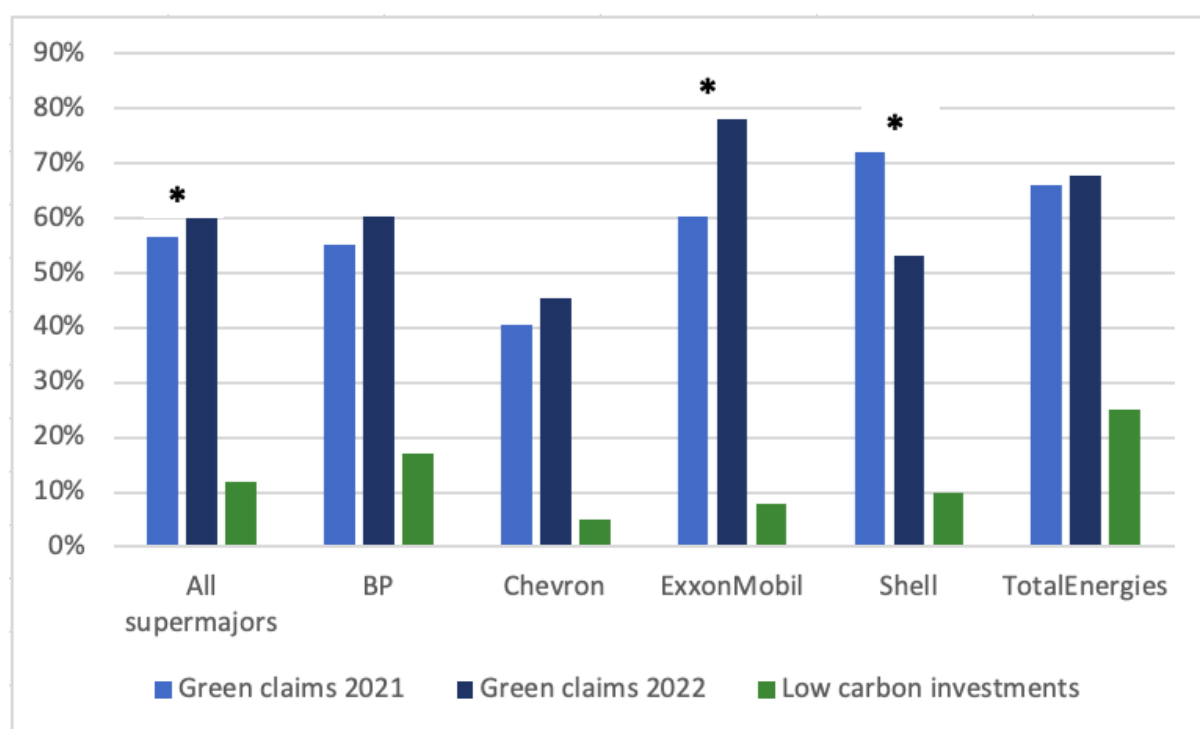

Figure 4.
A comparison of green claims (as a percentage of total social media communications) between February 24 and August 31 in 2021 and 2022, respectively, and 'low-carbon' investment CAPEX projections for 2022 based on InfluenceMap (2022a) as a percentage of total CAPEX. Results are shown for all supermajors combined and for each individual supermajor. 'Low-carbon' investments for Shell and TotalEnergies include some investments into fossil gas. (*) indicates a statistically significant change in the share of green claims in the total social media posts between 2021 and 2022 ($p \leq 0.05$).

Moreover, the green claims made by the supermajors stand in stark contrast to their projected oil and gas production, which is expected to increase or stay approximately the same up to 2026 (Table 6). Although equity-owned renewables capacity is expected to increase for three of the five supermajors (Table 7), the companies are still far from engaging in sufficient efforts to reach Paris Agreement targets, as is demonstrated in the following section.

Direct policy engagement

Since 2021, the supermajors have been directly lobbying policymakers on climate in a way that pushes the Paris Agreement targets further out of reach by advocating for greater oil and gas production, supporting the long-term use of fossil gas, and opposing stringent and ambitious methane emissions reduction regulations (Table 8; InfluenceMap, 2022a, p. 30). Furthermore, the supermajors' industry associations are actively opposing climate change policy, as the majority of the supermajors' industry associations have a Performance Band of D to F (InfluenceMap, 2022a, p. 39).

Table 8.
The Performance Band of each of the supermajors, based on InfluenceMap (2022a, p. 31). These categories indicate the degree of support or opposition of each supermajor to climate policy aligned with the Paris Agreement.

Supermajor	Performance Band
BP	C- (mixed alignment)
Shell	C- (mixed alignment)
TotalEnergies	C- (mixed alignment)
ExxonMobil	D (misaligned)
Chevron	D- (misaligned)

These findings regarding the supermajors' direct policy engagement support the findings regarding their business operations: while the companies present themselves publicly as 'green' and supporting climate action, their lobbying efforts are not aligned with Paris Agreement goals. Note that the data on lobbying collected by InfluenceMap relates to operations in 2021 and 2022. An analysis of lobbying after the outbreak of war in Ukraine can be found in the report of Corporate Observatory Europe, l'Observatoire des Multinationales and Recommon (2022).

3.3. Differences between US- and Europe-based supermajors

Sub-question 3: What differences in public communication can be observed between the US-based and Europe-based supermajors?

This subchapter first focuses on assessing the changes in public communication of the US and European supermajors between 2021 to 2022 . This was done to determine whether the narratives for each region changed or displayed new trends following the onset of the war in Ukraine. Next, this subchapter examines differences in public communication between the Europe-based and US-based supermajors within the same time period. Additionally, the frequency of narratives that directly relate or call attention to the ongoing conflict within Ukraine is compared between regions.

Table 9.

Comparison of share of each claim for US and European supermajors in total social media communications for 2021 and 2022.

Supermajor Region	2021				2022			
	C (%)	G(%)	P(%)	S(%)	C (%)	G(%)	P(%)	S(%)
US	24.1*✧	45.4*✧	13.9*	6.3*	11.3*✧	58.8✧	16.1*	6.7
Europe	10.5*✧	62.0*	4.2*✧	0.1*✧	2.8*✧	62.6	7.5*✧	9.4✧

Note. (*) indicates a difference in the share of a claim in total social media communications between supermajor regions that is statistically significant (p ≤ 0.05). (✧) indicates a difference in the share of a claim in total social media communications within a supermajor region from 2021-2022 that was statistically significant (p ≤ 0.05).

In 2021, the US supermajors presented a greater percentage of C and P and S claims than European supermajors (Table 9). However, European supermajors had a larger percentage of G claims.

For the year 2022, only C and P claims for the US showed a greater percentage of posts when compared to Europe (Table 9).

Several trends were observed when comparing results from both US and European supermajors from 2021 to 2022. Both groups of supermajors showed a decline in the percentage of C claims (Table 9). The percentage of G claims did not change for European supermajors, while US supermajors showed an increase. The share of S and P claims increased for European supermajors.

Figures 5 and 6 show the average daily posting frequency for the US and European supermajors for 2021 and 2022. For the US, the trend for both years shows little variation, with a notable peak in both years around May and a trough around June (Figure 5). Moreover, for Europe an overall trend of fewer posts for 2022 compared to 2021 was observed (Figure 6). Also, for 2021 a peak is shown in April for European majors, but for 2022, the peak is in mid-June. Furthermore, a trough was displayed in 2021 in late August and for 2022 in May.
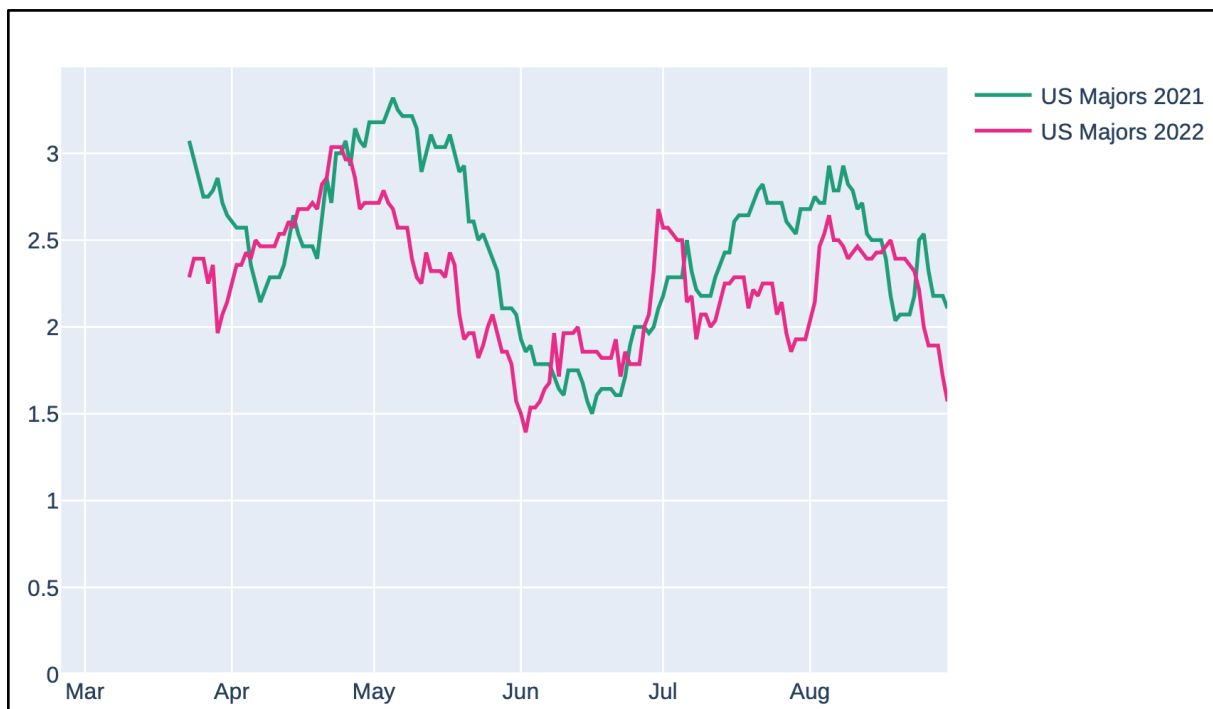
Figure 5.
28-day running average of the daily posting frequency for US supermajors in the assessed period in 2021 and 2022.
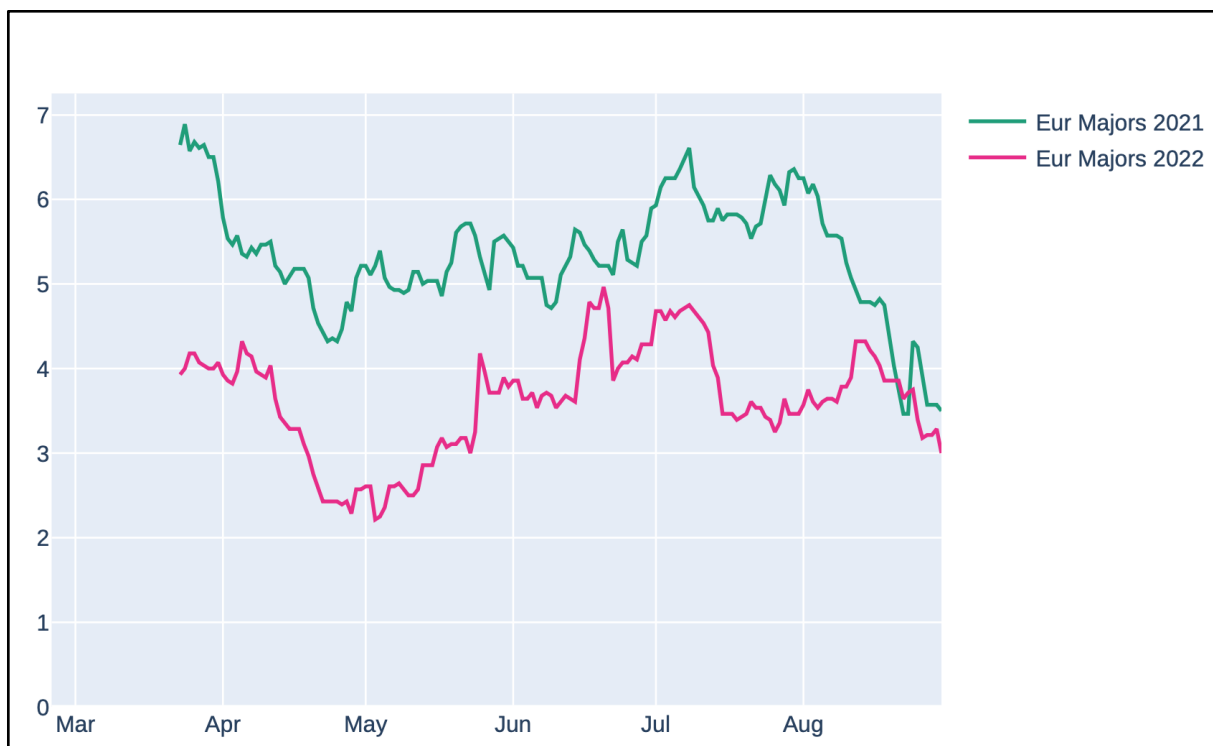

Figure 6.
28-day running average of claims for all European supermajors in the assessment period in 2021 and 2022.

When examining changes in total claims from 2021-2022, it can be seen that the total number of posts specifically decreased for European supermajors (Table 10).

Table 10.

Difference in total posts for US and European supermajors for 2021 and 2022.

Supermajor region	2021	2022
US	474	415
Europe	1004	668

Note. For total claims, all four narratives as well as not relevant claims were accounted for.

Lastly the frequency for claims with terminology in relations to the Ukraine conflict was assessed for both the US and European supermajors. It was found that US supermajors' had a total frequency of three related terms in stark contrast to a frequency of 50 terms for European super majors.

To conclude, even after accounting for variations in posting trends for both regions, it can be concluded that the US was more active when posting C and P claims (as a share of total claims) for both 2021 and 2022. The same can be said for European supermajors for G claims. Yet, while in 2021 the US posted more S claims, in 2022 there was no significant difference between the two regionsWhen analyzing changes for supermajor regions individually from 2021-2022, both regions saw a decrease in the share of total C claims. This was the only claim type that saw a simultaneous decrease for both regions in both years. European supermajors were then more active with total P and S claims, where total G claims became more active for US supermajors. And lastly, European supermajors continuously made references to the Russian-Ukraine conflict in comparison to only a few mentions from US supermajors.

3.4 Strategies and tools to oppose the greenwashing of the supermajors

3.4.1 Description of strategies and tools

Sub-question 4.1: What are strategies and tools used by Reclame Fossielvrij to fight greenwashing, and what other strategies can be found in the literature?

In order to give an overview of the different strategies and their overall objective, they have been categorized into three pillars, namely calling for state action, calling for company action and raising awareness (based on Dixon et al., 2016 and Fossielvrij NL, n.d.) according to their main intention (Figure 7). However, this is only to provide a broad classification of the strategies based on their main focus, as each of them may entail several aspects of the three pillars.
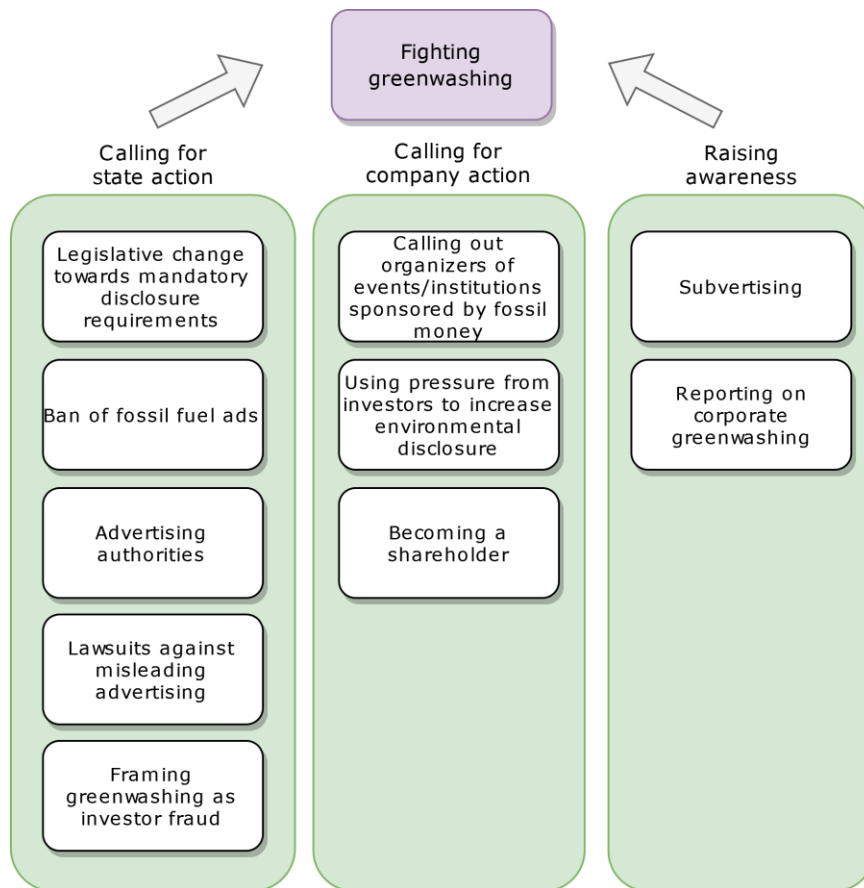
Figure 7.
The three pillars of greenwashing strategies.

Reclame Fossielvrij's strategies

1. Advocating for a ban on fossil fuel advertisement

Reclame Fossielvrij argues that a ban on fossil advertisement would send a clear sign to citizens that fossil fuels are harmful to our planet and our society (Reclame Fossielvrij, n.d. -b). To reach their goal, the organization lobbies on four different levels:

1.1 Lobbying at the local level

Reclame Fossielvrij advocates for a ban on fossil fuel advertising at the local level. Firstly, they attempted to enforce a ban on fossil fuel advertising in various municipalities by working closely with parties that they already cooperate with, such as the Christenunie and Groenlinks. The organization proactively approaches them with anti-fossil fuel advertising plans and in this way tries to get them to put up a motion against fossil advertising (Charlotte Braat, Reclame Fossielvrij, personal communications, October 19, 2022). With this strategy, they have already succeeded several times and enabled an official ban in six Dutch cities (Reclame Fossielvrij, 2021 December 24). These successes can then in turn be used to show other municipalities that banning fossil fuel advertising is possible, thus gaining momentum. A second option the organization utilizes to achieve a local ban on fossil fuel advertising is to lobby for a change in local advertising laws, which may be a quicker way to achieve

the goal than a ban as changes to the local law would come into force immediately and existing contracts with advertisers would not have to be taken into account (Charlotte Braat, Reclame Fossielvrij, personal communications, October 19, 2022).

1.2 Lobbying at the national level

Additionally, they are involved in activities in the House of Representatives of the Netherlands, such as giving debate inputs, talking to parliament members and collaborating with parties to vote for a ban of fossil fuel advertising in their election manifestos (Reclame Fossielvrij, n.d. -c).

1.3 Lobbying at the European level

Reclame Fossielvrij has initiated a European citizens' initiative, in cooperation with Greenpeace and other organizations, to ban fossil fuel advertisement in Europe which has already collected over 300.000 signatures (Greenpeace, n.d.; Reclame Fossielvrij, n.d. -c).1.4 Lobbying at the international level

The World health Organization (WHO) also plays an important role when it comes to advocating for a fossil fuel advertising ban at an international level. Reclame Fossielvrij has worked with the WHO to put out a discourse on how fossil fuel advertisement should be treated the same way as tobacco. The negative health effects of tobacco were proven to be significant enough to ban its advertisement, and Reclame Fossielvrij, the WHO and many other health organizations argue that the same case should apply to fossil fuels (Reclame Fossielvrij, 2022 May 23).

2. Lawsuits against misleading advertisement

Another strategy used by Reclame Fossielvrij, as well as other organizations, to stop the greenwashing of companies is to file lawsuits against them for misleading advertisement (Reclame Fossielvrij, n.d. -a; Sabin Center for Climate Change Law, n.d. -a).

In 2022, Fossielvrij NL has sued the Dutch aviation company KLM for violating the European consumer law because of their misleading advertisement about sustainable flying and Reclame Fossielvrij supports them with their lawsuit (Sabin Center for Climate Change Law, n.d. -b). KLM launched an advertisement campaign in which they claim to contribute to "creating a more sustainable future" (ibid.) in the context of the service they offer to compensate the emissions resulting from a flight. Fossielvrij NL, together with Reclame Fossielvrij and ClientEarth, argues that this statement is misleading as the aviation industry is one of the most polluting in the world and carbon offsetting activities do not compensate for the harm that resulted from the emitted GHG emissions from flying (Reclame Fossielvrij, 2022 May 24; Kaupa, 2022).

At the moment, nine court cases against climate claims of companies, including Fossielvrij NL vs. KLM, are still pending (Sutton, 2022, september 23). However, some cases against big polluting companies and their claims made in advertising were already decided. One of those cases is against Shell UK and whether their radio advertisement can be considered misleading (Sabin Center for Climate Change Law, n.d. -c). The United Kingdom's Advertising Standards Authority (ASA) agreed with the complainants and ruled that nothing in the advertisement indicated that Shell Go+ was a loyalty

scheme and not a carbon-neutral fuel, therefore misleading customers. As a result of the court ruling, Shell was not allowed to continue using this advertisement.

Another case is ClientEarth vs. BP using the OECD Guidelines on Multinational Enterprises. This case is particularly interesting because these Guidelines are, as the name suggests, guidelines are not laws, meaning they are non-binding. Still, ClientEarth won the case against BP which led to BP withdrawing their campaign and agreeing to end all 'corporate reputation advertising'. This can be considered a huge success as BP is one of the six largest oil and gas companies worldwide, significantly contributing to the acceleration of climate change (ClientEarth, 2021).

3. Calling out organizers of events/movies/institutions sponsored by fossil money

Reclame Fossielvrij, along with other organizations, also employs the strategy of calling out events, movies, institutions, etc. particularly related to sustainability discourses which are sponsored by fossil fuel companies. These events, movies, institutions, etc. acknowledge the oppositional role that those fossil fuel businesses and lobby groups play in the sustainability discussion by admitting them. By contributing money, these fossil partners also have a say in the festival's program, and therefore are able to manipulate their discourse and agendas (Reclame Fossielvrij, 2022 September 29).

Back on September 21st, 2022, several climate groups - including Reclame Fossielvrij - campaigned against the fossil sponsors of the Springtij sustainability festival. The Springtij festival presents itself as an event that aims to connect sectors to promote a successful transition to more sustainable ways. However, Springtij is (or used to be) sponsored by several fossil sponsors such as gas lobby club Element NL (former NOGEPA), Gasunie and EBN. Many guests refused to attend and participate as a form of protest against these sponsorships (Reclame Fossilvrij, 2022 September 29).

A similar case took place on October 4th, 2022, when 25 organizations – including young people, teachers, scientists, health care providers and psychologists - wrote a letter to the management team of the Wildlife Film Festival in Rotterdam to prevent the documentary "Wild Port of Europe" from being screened. "Wild Port of Europe", a film sponsored and conceived by Shell and BP, intends to portray a thriving and diverse biodiversity around the harbor in order to minimize the perception of the harm done by the non-environmental activities carried out in the Port (Reclame Fossielvrij, 2022 October 10).

Besides climate organizations and activists, the calling out of events and institutions when they are being sponsored by fossil money has also been done by the health research community. Back in 2019, the International Society for Exposure Sciences and International Society for Environmental Epidemiology (ISES-ISEE) joint conference in Ottawa was sponsored by ExxonMobile. Two members of ISEE expressed their discontentment regarding this sponsorship and requested that scientific societies, universities, and research centers refuse fundings from any fossil fuel-related company (Kogevinas & Takaro, 2019). This is closely related to the strategy explained above: Lobbying for a tobacco-style ban on fossil advertisement on the international level.

Other strategies

1. **Reporting on corporate greenwashing**

Data and information on corporate greenwashing can be a powerful tool. Exposing misalignment between communications and actual business activities can raise awareness among stakeholders. The data and tools that InfluenceMap provides are used by powerful actors in finance, business, campaigns, policymaking, and the media to drive meaningful change. For example, InfluenceMap is a data provider to Climate Action 100+ (CA100+). CA100+ is a voluntary investor initiative to ensure that the biggest corporate greenhouse gas emitters in the world take necessary action on climate change. CA100+ activity focuses on 166 target companies that are critical to the transition towards net-zero emissions (InfluenceMap, n.d. -a).

1. **Framing greenwashing as investor fraud**

In 2019, Massachusetts Attorney General Maura Healey sued Exxon Mobil for misleading both consumers and investors about the risks posed to the company because of climate change, including financial risk, with their advertisement. Healey claimed that Exxon has therefore violated the investor protection law and has misled investors about material climate-driven risks to its business. The complaint states that Exxon has published false statements as well as did not reveal all information relevant to investors to make decisions about investing in the company. As a penalty, Healy is asking for civil penalty payments to the state and performance of comprehensive injunctive relief (Commonwealth of Massachusetts, n.d. -a; Commonwealth of Massachusetts, 2022 June).

In the complaint, it is first described how Exxon Mobil contributes to global warming (Commonwealth of Massachusetts, 2022 June). Furthermore, it is explained how ExxonMobil has deliberately campaigned to undermine the impact of oil and gas on the climate crisis, with the aim to raise doubt in the public about the climate crisis, even though they were well aware of the causes and consequences of climate change for over 40 years. In a third part of the lawsuit, it is stated how ExxonMobil is misleading Massachusetts investors about the risks the climate crisis poses to its business. The company's long-term value is at risk, due to possible future climate change policies, which is of interest for investors that want to fully understand the risks climate change poses on the global financial market, fossil-fuel companies and ExxonMobil. ExxonMobil is not only willfully denying and downplaying these risks resulting from climate change, even though they are fully aware of the possible risks on their business and its assets but are also misleading their investors about it.. This misrepresentation of risks that climate change poses led to projections of climate related costs that were billions lower than the actual costs if the publicly announced carbon cost would have been applied, which may lead to future losses of Massachusetts investors (Commonwealth of Massachusetts, 2022 June).

This argument structure used by Healey could be used in the future for lawsuits against oil and gas companies for investor fraud as it can be assumed that next to ExxonMobil, other fossil fuel companies are also not disclosing all information about the risks of climate change to their business, including the use of low calculations of future carbon costs.

The case is yet to be decided and will continue until at least 2024 as new hearing dates are set for June 2023 and 2024 (Commonwealth of Massachusetts, 2022 May 6). If Healey wins this case, it could open doors for more lawsuits against oil and gas companies that run misleading ads and fail to educate about the risks companies face due to climate change.

2. **Using pressure from investors to increase environmental disclosure**

So far, in most countries only voluntary disclosure requirements on climate change risks are in place. However, many investors believe that climate risk disclosure is important to make informed investment decisions (Cotter & Najah, 2012; Krueger et al., 2020). A survey of 439 investors has shown that most of the investors think that transparency about climate change-related risks is as important as financial reporting, and one-third thinks that reporting on climate change risks is even more important (Krueger et al., 2020). While this survey did not specifically target investors investing in fossil fuel companies, the results do show a strong trend that could also be true for investors investing in fossil fuel companies.

The non-profit organization Carbon Disclosure Project (CDP) runs a worldwide environmental disclosure system and supports public and private stakeholder in being transparent about their environment related risks and opportunities (Carbon Disclosure Project, n.d.). The organization uses pressure from investors as a means to increase corporate climate change disclosure to be able to better hold companies accountable for their actions regarding the environment (Cotter & Najah, 2012). In total, over 680 investors that together have assets worth 130 trillion US-dollars have already requested environmental disclosure of companies through CDP (Carbon Disclosure Project, n.d.), indicating that investors are demanding greater disclosure of environmental risks by companies.

Additionally, research on U.S. shareholders and businesses has shown that when shareholders, particularly investors, advocate for greater disclosure of climate change risks, corporate transparency about these risks actually increases (Cotter & Najah, 2012; Flammer et al., 2021). This voluntary disclosure by companies is even beneficial to them as they often achieve higher valuation which indicates that investors value disclosure of the climate change-related risks that companies face (Flammer et al., 2021).

These findings show that even in the absence of mandatory disclosure requirements, higher transparency about climate change risks to businesses can be achieved through the pressure of investors. Subsequently, a good strategy to force companies to publicly disclose the risks their businesses face due to climate change and consequently reduce their greenwashing, is to communicate this possibility to investors of fossil fuel companies, encouraging them to pressure companies to be more transparent about climate change risks.

3. **Becoming a shareholder**

One organization that has used this knowledge, that companies adhere to their shareholders when they advocate for more transparency about climate related risks, is *Follow This* - an organization that is dedicated to changing big oil companies from the inside by buying their shares to get a say at their shareholder meetings (Follow This, n.d. -a). Since their creation, Follow This has collected 5000 shares and has repeatedly filed resolutions for big oil companies to set emission reduction targets that align with the Paris-Agreement (Follow This, n.d. -b). In 2022, 20 % of Shell's shareholders voted in favor of their resolution, even though Shell advised their shareholders to vote against it, calling it an "unrealistic" resolution (Shell, 2022 May 24, p.7).

4. **Lobbying for legislative change towards mandatory disclosure requirements**

As the outcome of the lawsuit Healey vs. ExxonMobil could still take years, Farnworth (2021) suggests that rather than wait, efforts could focus on achieving a change in legislation. More specifically, the ESG disclosure requirements for businesses could be strengthened.

ESG disclosure is a way for a company's management team to publicly report on how well it is doing on various Environmental, Social, and Governance (ESG) issues. It aids stakeholders in understanding how a company is handling ESG risks and opportunities, including creditors, employees, and potential customers. ESG disclosures that are ineffective or inaccurate could be referred to as greenwashing (Yu, et al. 2020; Arvidsson & Dumay, 2021; Corporate Finance Institute, 2022).

So far, legislation is not strong enough to make sure that fossil fuel companies account for the 'material' risks that climate change poses to their businesses and disclose the impact of their company's activities and long-term business decisions on climate change (Attenborough, 2022). Research has found that in the UK over 60 % of fossil fuel companies do not mention "climate" or similar keywords in the risk assessment section of their annual reports, even though the FRC Guidance clearly state that companies have to disclose risks to their business as well as the resulting financial implications (Attenborough, 2022).

One country that has already included mandatory disclosure requirements is France. In Article 173 of the French Law on Energy Transition, several disclosure requirements that companies need to disclose in their annual reports are listed (Farnworth, 2021):
(a) financial risks related to the effects of climate change
(b) the measures adopted by the company to reduce them
(c) the consequences of climate change on the company's activities and the use of goods and services it produces

Additionally, article 173 requires investors to make transparent how ESG criteria influence their investment decisions and how their goals relate to national efforts to transition the energy system (Farnworth, 2021).

5. Advertising authorities

Several advertising authorities exist that prevent misleading claims; for the Netherlands there is the Reclame Code Commissie (RCC), in the UK there is the Advertising Standards Authority (ASA), and the US has the Federal Trade Commission (FTC) (Nemes et al., 2022). Such authorities provide rules for advertising for companies, in order to keep them accountable to make fair claims in their advertisements. Some advertising authorities have specific rules about green claims, for example the Dutch RCC code for environmental claims, one of the rules indicates that the framing minor changes in a companies' sustainability performance as a breakthrough is not allowed (Stichting Reclame Code, n.d. -a). These rules for advertising can be used by citizens and activist groups for calling out companies for greenwashing, as shown by several past examples where companies had to change their claims in advertisements after a case made based on an advertising authority's regulations. An example of this is a group of law students filing a complaint to the RCC where Shell was accused of greenwashing for an advertisement about carbon neutral driving, for which Shell had to change the advertisement (Greenpeace Nederland, 2021).

Additionally the Reclame Code Committee has a compliance team that checks whether the decision that was made in the case is followed-up upon by the advertiser, e.g. changing or removing the advertisement when a claim is found ungrounded in a case (Stichting Reclame Code, n.d. -b)

Furthermore, a short analysis of cases from advertising authorities (Annex B) showed that a ruling over one advertising case, can be used to help to inform cases for other advertisements. Here, it displays the argument that was used at a ruling for a case for Shell in 2021, was later used to build a case pointing to greenwashing in a KLM advertisement, and an advertisement by Arla. Additionally, the aforementioned Shell case on carbon neutral driving by students in April 2021, was preceded by a similar case on Shell's claims on carbon neutral driving in the UK in March 2020 (ASA, 2020; the Drum, 2020).

6. Subvertising

Subvertising is a creative form of activism that by the use of parodies, imitations and message changes uses marketing spaces like billboards to take a stance against big corporations (Smith-Anthony & Groom, 2015; Lekakis, 2017). Subvertising is used for various motives, for example to protest against the consumerism and values that are promoted by big corporations in advertising, though in general subvertising is done from anti-advertising motivations (Smith-Anthony & Groom, 2015). As described in Lekalis (2021), subvertising activists sum up that advertising "nurtures consumerism, erases quality of life, spearheads environmental catastrophe, corrodes social trust, and increases the feeling of alienation in urban settings, while making the superrich insurmountably richer and the roots of inequalities deeper" (p.741). With that, subvertising is aimed at challenging consumer culture and consumerism and the role of commercial media in shaping society (Lekakis, 2021).

While subvertising is a strategy that is generally anti-consumerist and anti-advertising, it is also a strategy that is deployed by activists to specifically draw attention to the climate impact and greenwashing of major oil and gas companies. For example Annex E, includes a Shell-like

subvertisement by activist Darren Cullen. Another example is a large subvertising action by subvertising group Brandalism who put more than 200 poster up in the UK, Paris and Belgium in the run up to COP26, which specifically pointed to a ban against fossil fuel ads (AdFreeCities, 2021; Annex E). Reclame FossielVrij has also used subvertising as a tactic and way to raise public awareness and start a conversation (Annex E).

3.4.2 Evaluation of the strategies

Sub-question 4.2: What are the pros and cons of these strategies and tools used to oppose greenwashing?

Following, the above-described strategies are evaluated based on their direct and indirect impact as well as the resources they require, divided into time, money and expertise/skills. In Table 11, an overview of the evaluation scores for each strategy and each variable is presented.

Table 11.

Overview of the evaluations of all strategies

	Impact		Resources		
	Direct	Indirect	Time	Money	Expertise
Reporting on corporate greenwashing	-	+	-	-	-
Advocating for a ban on fossil fuel ads - local level	+	+/-	+/-	+	-x
Advocating for a ban on fossil fuel ads - national/global level	+/-	+	-	+/-	-
Lawsuits against misleading advertising	+/-	+	-	-	-
Calling out organizers of events/institutions sponsored by fossil money	+/-	+	+	+	+
Framing greenwashing as investor fraud	+/-	+	-	-	-
Using pressure from investors to increase environmental disclosure	+/-	+	+/-	+	+/-
Becoming a shareholder	+/-	+/-	-	-	+/-
Advocating for legislative change towards mandatory disclosure requirements	+/-	+/-	-	+	-
Advertising authorities	+/-	+/-	+/-	+/-	+/-
Subvertising	-	+	+	+/-	+/-

As it can be seen in Table 11, there is no strategy to oppose greenwashing that succeeds in every criteria. There are always factors decreasing its effectiveness, or defaulting its full success. However, some strategies succeed in some categories and are therefore recommended to use depending on the objective it is supposed to serve as well as the available resources. Below, highlights and outstanding findings from the evaluation are listed:

- For a high direct impact, lobbying for a ban of fossil fuels on the local level is a good strategy, which also makes it easier to then advocate on the national and the global level.
- Calling out organizers of events/institutions sponsored by fossil money as well as subvertising are recommended strategies for a low resource availability paired with a high indirect impact, which makes them especially suitable for Reclame Fossielvrij.
- Reporting on corporate greenwashing is a good strategy to raise awareness among investors.
- Pressure from investors is one of the most promising strategies for a direct impact which could be combined with a strategy to raise awareness among them, such as reporting on corporate greenwashing. The data and tools from InfluenceMap can be used to this end.
- Suing for misleading advertisements is a suitable strategy to get a high media coverage and therefore a high influence on public opinion. In this context, joining forces with other organizations could be a good way to reduce resource intensity.
- Framing greenwashing as investor fraud is a novel strategy that could open new possibilities to tackle greenwashing but it is recommended to wait for the outcome of the case Exxon vs. Healey to draw lessons from the case.

A detailed evaluation of the strategies can be found in Annex F.

4. Integration

In this chapter, the findings from the evaluation of the different strategies to oppose greenwashing are put into broader perspective, and recommendations are given on how the strategies can be used to fight greenwashing most effectively. Furthermore, this chapter integrates the findings of the communications analysis by relating them to some of the strategies for opposing greenwashing, based on how promising they are and how well they link to the results from the communications analysis. Subsequently, recommendations are given on what integrated interventions our clients and Reclame Fossielvrij may take to increase the potential of these strategies to successfully oppose greenwashing (Figure 8).

One of the main conclusions that can be drawn from the strategy evaluation is that the strategies that could have the biggest direct impact on opposing greenwashing are also the ones that present the lowest success rates. This is due to the fact that these strategies are time-consuming to be successfully implemented, as is the case with advocating for a ban on fossil fuel advertisement on the national or global level and advocating for legislative change towards mandatory disclosure requirements. On the other hand, strategies that have a lower direct impact because they act at a smaller scale, rather oppose greenwashing on a case-by-case basis and do not directly lead to structural change, are instead more likely to be successful. This can be seen in the strategies of subvertising or filing lawsuits against misleading advertising.

However, there is extensive research done on how tackling environmental problems at the local level can lead to global changes in time (Rietig, 2014), suggesting that strategies without structural changes might accumulate their impact and create ripple effects which could then lead to a high direct impact over time. Therefore, it is recommended to invest as much time and resources on the implementation of small scale-strategies as of large-scale strategies. Moreover, as small-scale strategies are less resource intensive, they are more attainable for smaller activist groups, such as Reclame Fossielvrij, that might not have access to extensive resources.

Next to balancing smaller-scale and structural-change strategies, it is critical to keep a good balance between strategies with a direct and an indirect impact. Even though strategies with a higher direct impact succeed in directly revoking corporate greenwashing, raising public's awareness can lead to more pressure on polluting companies coming from the society and a damage to their reputation, subsequently leading to direct changes in greenwashing due to companies trying to uphold their reputation (Dixon et al., 2016).

We recommend that strategies which are very resource-intensive but have limited direct or indirect impact should not be prioritized, such as becoming a shareholder or advocating for legislative change towards mandatory disclosure requirements, especially for smaller organizations such as Reclame Fossielvrij. Alternatively, what could be considered is for Reclame Fossielvrij to join forces with other organizations, such as with Follow This, if they would want to apply the strategy of becoming a shareholder and changing a company from within. In this way, resource use per organization is limited, but it is still possible to implement the strategy and try to achieve a small impact or help create ripple effects.

The results of the communications analysis conducted in sub-questions 1, 2, and 3 offer interesting insights that can be used to more successfully implement many of the strategies evaluated in sub-question 4. In general, the results can serve as evidence of greenwashing activities by supermajors that can be instrumentalized for a more successful implementation of some of the strategies discussed below.

First, the extent to which the results can be used as evidence in lawsuits against oil and supermajors could be explored. For example, the analysis results from sub-questions 1 and 2 could be used to show the extent of the discrepancy between the communication and the actual business activities of the supermajors, which could be used to support lawsuits against misleading advertising by the supermajors, possibly leading to a higher success rate of this strategy.

Moreover, the results could be instrumentalized for lobbying for a ban on fossil fuel advertising. The results of the first and second sub-questions show that most of the supermajors' claims are green claims, which could be an indication that this is also the case in advertising. However, as these claims do not reflect the actual low-carbon activities of supermajors, this result could be used to convince politicians that a ban on fossil fuel advertising is urgently needed, as otherwise the population could be negatively influenced and misled about the impact of supermajors on the climate.

We found that investors play a powerful role in pushing for change and helping to fight greenwashing. The strategy of using investor pressure to improve environmental disclosure was therefore found to be particularly promising. Therefore, strategies specifically targeting investors' awareness are crucial to convince them to use their corporate influence and put more pressure on companies they are investing in, which could be a promising strategy to directly oppose greenwashing. In order to increase the immediate impact and success rate of this strategy, while reducing the time required for its successful implementation, the results of the communications analysis could be used to raise investor awareness of the importance of increasing disclosure of companies' environmental impacts. The analysis showed that companies present themselves as 'green' and subsequently engage in greenwashing because their portrayal in the media does not match their actual activities. Therefore, more transparency is needed so that investors can better assess the extent to which their activities match their external communication and thus make more informed investment decisions.

Finally, it is important to communicate the results of the communications analysis to the media in order to inform the public and thus achieve greater public awareness and indirect impact of the greenwashing of the oil & gas supermajors. The impact on the public's awareness could be maximized if campaigners work on getting higher media coverage as well as investing into strong advertisement and promotion of their messages.
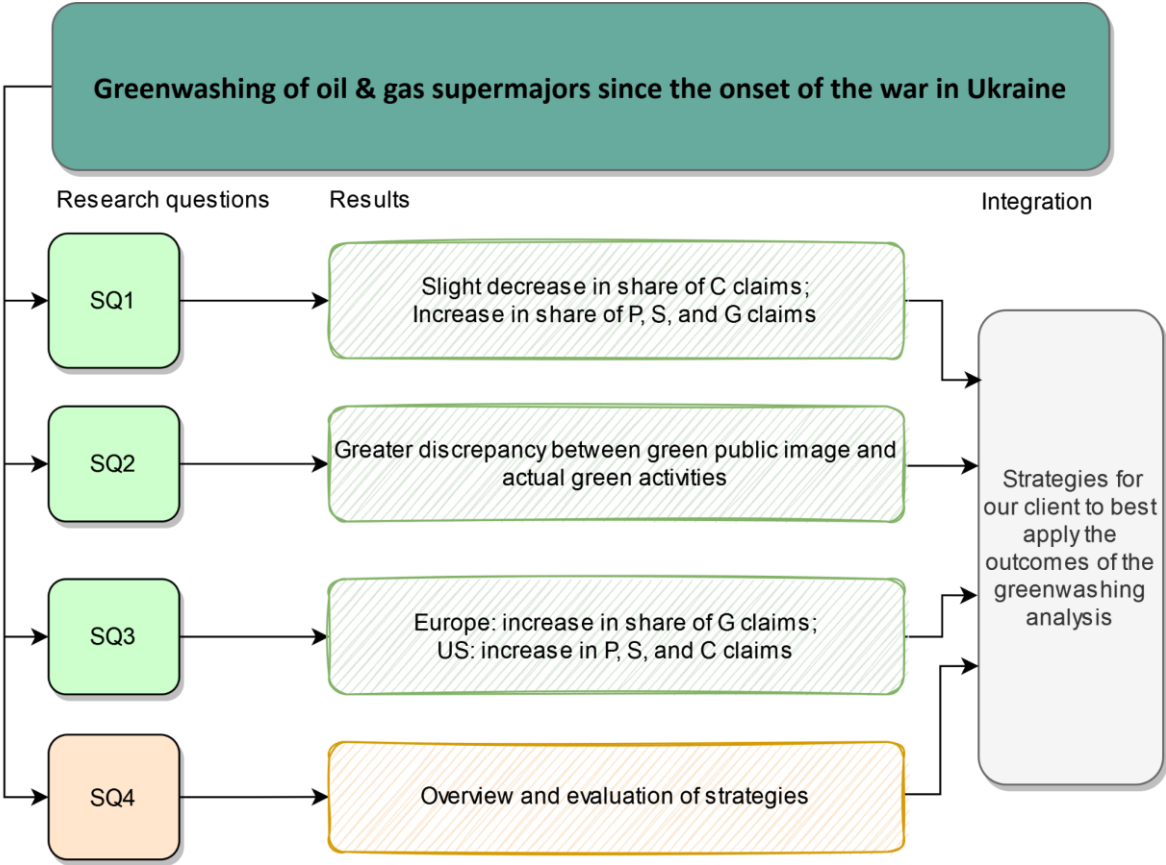

Figure 8.
Integration flowchart illustrating the results of the four sub-questions and their integration.

5. Limitations and future research

In the following, limitations and suggestions for future research are discussed.

In the communications analysis section, the first challenge that was faced was achieving sufficient agreement between coders to pass the ICR test. The authors had to do the test three times before it was passed, which resulted in time constraints and delayed the start of the coding process. As coding individually resulted in a lot of discrepancies, the decision of coding in pairs was made. This highly increased our coding consistency and is therefore recommended for future coding projects. Moreover, due to time constraints and the need to pass the ICR test as quickly as possible, the specific subcategories of each claim were not included in the analysis. Including these subcategories could have provided more insight and detail to the analysis, especially amongst the green claims, which were all categorized under the same label 'G' while there was a wide variety among them. Further research could therefore include a more in-depth analysis of the supermajors' green claims, where claims could be split into different subcategories to better highlight differences in the supermajors' narratives.

Due to time constraints, this report provides only a preliminary evaluation of the greenwashing strategies and many more details should be taken into consideration. Future research could include conducting population surveys to better assess the indirect impact of the strategies to oppose greenwashing and expert interviews to get a better understanding of the required resources.

Furthermore, additional research of why the narrative trends occurred could be conducted, using the observed trends and specific narratives of the supermajors as key points to better understand the findings of this research. In this context, another interesting point to research further is whether the supermajors migrated to their country or regional social media accounts after the outbreak of the war to avoid negative mediatic impacts.

Moreover, as the communications of three European majors were analyzed in this report, it could be interesting to analyze the communications of three US supermajors to see if there are observable changes in narratives. Additionally, comparing Global North oil and gas companies to Global South oil & gas companies could deliver interesting insights as in this report only publicly listed companies in the US and Europe were included.

6. Conclusion

This report offered interesting insights into the public communications of the oil & gas supermajors since the onset of the war in Ukraine, as well as into which strategies to use to most successfully oppose greenwashing.

Overall, the number of claims published by all supermajors in their social media platforms decreased after the onset of the war. The analysis of the supermajors' communications showed that, overall, the green claims from US supermajors have increased since the onset of the war in Ukraine.Both US and European supermajors saw a decrease in the share of total C claims. European supermajors were more active with total P and S claims after the onset of the war in Ukraine, where total G claims became more active for US supermajors. Lastly, European supermajors continuously made references to the Russian-Ukraine conflict in comparison to only a few mentions from US supermajors.

The main strategy of Reclame Fossielvrij, which is lobbying for a ban on fossil fuel ads, was evaluated as having a medium impact and resource intensity, with outstanding advantages in the category of direct impact for lobbying on the local level.

In general, we recommend a combination of different strategies. A balance is needed between strategies aiming at small-scale and large-scale changes as well as between strategies with a direct and an indirect impact. Targeting investors seems to be one of the most promising strategies to oppose greenwashing and could be pursued to most effectively tackle greenwashing.

The most suitable integrated interventions our clients and Reclame Fossielvrij may take in order to leverage our findings from the communications analysis and therefore increase the potential to successfully oppose greenwashing include using the analysis results to support lawsuits against misleading advertising by the supermajors, to convince politicians that a ban on fossil fuel advertising is urgently needed, and to raise investor awareness of the importance of increasing disclosure of companies' environmental impacts to subsequently make more informed investment decisions.

References

AdFormatie. (2022, June 24). *Gaan de "best and the brightest" eindelijk meehelpen de wereld redden?* https://www.adformatie.nl/campagnes/gaan-de-best-and-brightest-eindelijk-de-wereld-redden

AdFree Cities. (n.d.). *Subvertising campaign targets advertising industry's role in climate breakdown*. Retrieved November 4, 2022, from https://adfreecities.org.uk/2021/10/subvertising-campaign-targets-advertising-industrys-role-in-climate-breakdown/

AdFreeCities. (2021). *Subvertising campaign targets advertising industry's role in climate breakdown*. https://adfreecities.org.uk/2021/10/subvertising-campaign-targets-advertising-industrys-role-in-climate-breakdown/

Arvidsson, S., & Dumay, J. (2021). Corporate ESG reporting quantity, quality and performance:Where to now for environmental policy and practice? *BusinessStrategy and the Environment, 31*(3), 91–1110. https://doi.org/10.1002/bse.29371110ARVIDSSONANDDUMAY

ASA. (2020). *ASA Ruling on Shell UK Ltd.* Retrieved October 11, 2022, from https://www.asa.org.uk/rulings/shell-uk-ltd-g20-1049869-shell-uk-ltd.html

Attenborough, D. (2022). Corporate Disclosures on Climate Change: An Empirical Analysis of FTSE All-Share British Fossil Fuel Producers. *European Business Organization Law Review, 23,* 313-346. https://doi.org/10.1007/s40804-022-00246-2

BBC News. (2022, September 30). *What are the sanctions on Russia and are they hurting its economy?* Retrieved October 21, 2022, from https://www.bbc.com/news/world-europe-60125659

Becker-Olsen, K. & Potucek, S. (2013). Greenwashing. In S.O. Idowu, N. Capaldi, L. Zu, A.D. Gupta (Eds.). *Encyclopedia of Corporate Social Responsibility* (pp.1318–1323). Springer. https://doi.org/10.1007/978-3-642-28036-8_104

Brulle, R.J. (2018). The climate lobby: a sectoral analysis of lobbying spending on climate change in the USA, 2000 to 2016. *Climatic Change, 149*, 289-303. https://doi.org/10.1007/s10584-018-2241-z

Carbon Disclosure Project. (n.d.). *What we do*. Retrieved October 18, 2022, from https://www.cdp.net/en/info/about-us/what-we-do

CBS News. (2022, May 26). *Massachusetts climate change case against Exxon can proceed, court*

rules. Retrieved October 25, 2022, from
https://www.cbsnews.com/news/climate-change-massachusetts-exxon-lawsuit-proceed/

ClientEarth. (2021). *ClientEarth 2020 Annual Report.*
https://www.clientearth.org/latest/documents/clientearth-2020-annual-report/

Commonwealth of Massachusetts. (n.d. -a). *Attorney General's Office Lawsuit Against ExxonMobil*.
Retrieved October 12, 2022, from
https://www.mass.gov/lists/attorney-generals-office-lawsuit-against-exxonmobil

Commonwealth of Massachusetts. (2022, June). *Commonwealth of Massachusetts v. ExxonMobil*
Corporation. Amended Complaint. Retrieved October 12, 2022, from
https://www.mass.gov/doc/june-5-2020-amended-exxon-complaint/download

Commonwealth of Massachusetts. (2022, May 6). *Scheduling Order*. Retrieved October 2, 2022, from
https://www.mass.gov/doc/may-6-2022-scheduling-order/download

Corporate Finance Institute. (2022). *ESG Disclosure*. Retrieved October 9, 2022, from
https://corporatefinanceinstitute.com/resources/knowledge/other/esg-disclosure/

Corporate Observatory Europe, l'Observatoire des Multinationales, Recommon. (2022, October).
Fuelling the Cost of Living Crisis.
https://corporateeurope.org/en/2022/10/fuelling-cost-living-crisis

Cotter, J. & Najah, M.M. (2012). Institutional investor influence on global climate change disclosure
practices. *Australian Journal of Management, 37*(2).
https://doi.org/10.1177/0312896211423945

De Freitas Netto, S. V. (2020, February 11). *Concepts and forms of greenwashing: a systematic review*
- Environmental Sciences Europe. SpringerOpen.
https://enveurope.springeropen.com/articles/10.1186/s12302-020-0300-3

Dixon, M., Martin, A. W., & Nau, M. (2016). Social protest and corporate change: Brand visibility,
third-party influence, and the responsiveness of corporations to activist campaigns.
Mobilization, 21(1), 65–82. https://doi.org/10.17813/1086-671X-21-1-65

European Council. (2022, October 6). *Timeline - EU restrictive measures against Russia over Ukraine.*
Retrieved October 21, 2022, from
https://www.consilium.europa.eu/en/policies/sanctions/restrictive-measures-against-russia-
over-ukraine/history-restrictive-measures-against-russia-over-ukraine/

Farnworth, C. (2021). Do shareholders have the power? climate change as material risk. *Tulane*
Environmental Law Journal, 34(1), 149-168.

Flammer, C., Toffel, M.W. & Viswanathan, K. (2021). Shareholder activism and firms' voluntary
    disclosure of climate change risks. *Strategic Management Journal, 42*(10), 1850-1879.
    https://doi.org/10.1002/smj.3313

Fleiss, J. L. (1971). Measuring nominal scale agreement among many raters. *Psychological Bulletin*,
    76, 378-382. https://doi.org/10.1037/h0031619

Fleiss, J. L., Levin, B., & Paik, M. C. (2003). *Statistical methods for rates and proportions* (3rd ed.).
    Wiley.

Follow this. (n.d. -a). *About us*. Retrieved October 14, 2022, from https://www.follow-this.org/our-
story/

Follow this. (n.d. -b). *Results of our Resolutions*. Retrieved October 14, 2022, from
    https://www.follow-this.org/resolutions-results/

Follow this. (n.d. -c). *Our story*. Retrieved October 25, 2022, from https://www.follow-this.org/our-
story/

Fossielvrij NL. (n.d.) *Hoe gaat de verandering die wij willen plaatsvinden?* Retrieved November 2,
    2022, from https://gofossilfree.org/nl/theoryofchange/

Greenpeace. (n.d.). *Teken Tegen Fossiele Reclame*. Retrieved October 12, 2022, from
    https://www.greenpeace.org/nl/eci/

Greenpeace Nederland. (2021). *Studenten dienen klacht in tegen misleidende Shell reclames*.
    Retrieved October, 2022, from https://www.greenpeace.org/nl/natuur/45805/studenten-
    dienen-klacht-in-tegen-misleidende-shell-reclames/

Heede, R. (2014). Tracing anthropogenic carbon dioxide and methane emissions to fossil fuel and
    cement producers, 1854–2010. *Climatic Change, 122*, 229–241.
    https://doi.org/10.1007/s10584-013-0986-y

InfluenceMap. (n.d. -a). *CA100+ Investor Hub.* Retrieved November 4, 2022, from
    https://ca100.influencemap.org/

InfluenceMap. (n.d. -b).*Sustainable Finance Policy Engagement.* Retrieved November 4, 2022, from
    https://sustainablefinance.influencemap.org/

InfluenceMap. (n.d. -c). *Automotive Climate Tool.* Retrieved November 4, 2022, from
    https://automotive.influencemap.org/

InfluenceMap (n.d. -d). *Our Mission and Impact.* Retrieved October 1st, 2022, from
https://influencemap.org/mission

InfluenceMap (n.d. -e) *Meet our people.* Retrieved November 4, 2022, from
https://influencemap.org/multipage/Our-People-6599

InfluenceMap. (2021). *FinanceMap - Climate-focused Analysis of Funds and Asset Managers* [Video].
YouTube. Retrieved October 12, 2022, from
https://www.youtube.com/watch?v=n4AdyRx033c

InfluenceMap. (2022a). *Big Oil's Real Agenda on Climate Change 2022: An analysis of oil and gas
supermajors' public communications, business operations, and policy engagement on
climate*. https://influencemap.org/report/Big-Oil-s-Agenda-on-Climate-Change-2022-19585

InfluenceMap. (2022b). *US Oil and Gas and the War in Ukraine. How US oil and gas companies have
used the war in Ukraine to undermine Paris-aligned climate policy*.
https://influencemap.org/report/US-Oil-and-Gas-and-the-War-in-Ukraine-19009

Investopedia. (2022). *What Is Greenwashing? How It Works, Examples, and Statistics*.
Retrieved   November   4,   2022,   from
https://www.investopedia.com/terms/g/greenwashing.asp

IPCC. (2021). *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to
the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.*
https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_FullReport.pdf

IPCC AR6 WGIII. (2022). *Climate Change 2022: Mitigation of Climate Change*.
https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_Full_Report.pdf

Jacobs, L.R. & Mettler, S. (2018). When and How New Policy Creates New Politics: Examining the
Feedback Effects of the Affordable Care Act on Public Opinion. *Perspectives on Politics, 16*(2),
345-363. https://doi.org/10.1017/S1537592717004182

Kaupa, C. (2022). Peddling False Solutions to Worried Consumers the Promotion of Greenhouse Gas
'Offsetting' as a Misleading Commercial Practice. *Journal of European Consumer and Market
Law*. https://dx.doi.org/10.2139/ssrn.4157810

Kenner, D. & Heede, R. (2021). White knights, or horsemen of the apocalypse? Prospects for Big Oil
to align emissions with a 1.5°C pathway. *Energy Research & Social Science, 79,* 102049.
https://doi.org/10.1016/j.erss.2021.102049

Kogevinas, M., & Takaro, T. (2019). Sponsorship by Big Oil, Like the Tobacco Industry, Should be
Banned by the Research Community. *Epidemiology*, *30*(5), 615–616.
https://doi.org/10.1097/ede.0000000000001042

Krueger, P., Sautner, Z., & Starks, L. T. (2020). The importance of climate risks for institutional investors. *Review of Financial Studies, 33*(3), 1067– 1111.
https://doi.org/10.1093/rfs/hhz137

Lawson, A. (2022, September 2). *Nord Stream 1: Gazprom announces indefinite shutdown of pipeline*. The Guardian. Retrieved October 21, 2022, from
https://www.theguardian.com/business/2022/sep/02/nord-stream-1-gazprom-announces-indefinite-shutdown-of-pipeline
Lekakis, E. J. (2017). Culture jamming and Brandalism for the environment: The logic of appropriation. *Popular Communication*, *15*(4), 311–327.
https://doi.org/10.1080/15405702.2017.1313978

Lekakis, E. J. (2021). Adversaries of advertising: anti-consumerism and subvertisers' critique and practice. *Social Movement Studies*, *20*(6), 740–757.
https://doi.org/10.1080/14742837.2020.1837102

Li, M., Trencher, G. & Asuka, J. (2022). The clean energy claims of BP, Chevron, ExxonMobil and Shell: A mismatch between discourse, actions and investments. *PLoS ONE, 17*(2), 1-27.
https://doi.org/10.1371/journal.pone.0263596

LobbyMap. (n.d. -a). *About.* Retrieved November 4, 2022, from https://lobbymap.org/about

LobbyMap. (n.d. -b). *About our score.* Retrieved November 4, 2022, from
https://lobbymap.org/page/About-our-Scores

Lyon, T. P., & Montgomery, A. W. (2015). The Means and End of Greenwash. *Organization &Amp; Environment*, *28*(2), 223–249. https://doi.org/10.1177/1086026615575332

Markham, D., Khare, A., & Beckman, T. (2014). Greenwashing: A proposal to restrict its spread. *Journal of Environmental Assessment Policy and Management*, *16*(4), 1–16.
https://doi.org/10.1142/S1464333214500306

McGreal, C. (2022, May 26). *Exxon must go to trial over alleged climate crimes, court rule*s. The Guardian. Retrieved October 25, 2022, from
https://www.theguardian.com/environment/2022/may/24/exxon-trial-climate-crimes-fossil-fuels-global-heating

Mésonnier, J. & Nguyen, B. (2020). Showing off Cleaner Hands: Mandatory Climate-Related Disclosure by Financial Institutions and the Financing of Fossil Energy. *SSRN*.
https://dx.doi.org/10.2139/ssrn.3733781

Miller, B. M., & Lellis, J. (2015). Audience Response to Values-based Marketplace Advocacy by the Fossil Fuel Industries. *Environmental Communication*, *10*(2), 249–268.
https://doi.org/10.1080/17524032.2014.993414

Nemes, N., Scanlan, S. J., Smith, P., Smith, T., Aronczyk, M., Hill, S., Lewis, S. L., Montgomery, A. W., Tubiello, F. N., & Stabinsky, D. (2022). An Integrated Framework to Assess Greenwashing. *Sustainability*, *14*(8), 1–13. https://doi.org/10.3390/su14084431

Netherlands Commercial Court. (n.d.). *How much does it cost?* Retrieved October 28, 2022, from https://www.rechtspraak.nl/English/NCC/Pages/costs.aspx

Neuendorf, K. A. (2022). *The Content Analysis Guidebook 1st (first) edition*. Sage Publications.

Orange, E., & Cohen, A. M. (2010). From eco-friendly to eco-intelligent. *The Futurist*, *44*(5), 28.

Rayens, M.K., Hahn, E.J., Langley, R.E., Hedgecock, S., Butler, K.M. & Greathouse-Maggio, L. (2007). Public Opinion and Smoke-Free Laws. Policy, *Politics & Nursing Practice, 8*(4), 262-270. https://doi.org/10.1177/1527154407312736

Raymond, N. (2022, May 24). *Exxon must face Massachusetts climate change lawsuit, court rules*. Reuters. Retrieved October 25, 2022, from https://www.reuters.com/business/energy/exxon-must-face-massachusetts-climate-change-lawsuit-court-rules-2022-05-24/

Reclame Fossielvrij. (n.d. -a). *Worldwide initiatives to ban fossil fuel advertisements*. Retrieved September 28, 2022, from https://verbiedfossielereclame.nl/only-words/

Reclame Fossielvrij. (n.d. -b). *Frequently Asked Question*s. Retrieved October 10, 2022, from https://verbiedfossielereclame.nl/faq/

Reclame Fossielvrij. (n.d. -c). *Advertising Fossil Free. For a ban on fossil advertising.* Retrieved October 12, 2022, from https://verbiedfossielereclame.nl/

Reclame Fossielvrij. (2021, December 24). *Already 6 cities for ban on fossil advertising*. Retrieved October 23, 2022, from https://verbiedfossielereclame.nl/ook-haarlem-en-enschede-willen-fossiele-reclames-uit-straatbeeld-rotterdam-nog-koudwatervrees/

Reclame Fossielvrij. (2022, May 23). *Internationale global health professionals: verbod op fossiele reclame noodzakelijk voor klimaat en gezondheid: "Zonder verbod verandert er niets."* Reclame Fossielvrij. Retrived from https://verbiedfossielereclame.nl/internationale-global-health-professionals-verbod-op-fossiele-reclame-noodzakelijk-voor-klimaat-en-gezondheid-zonder-verbod-verandert-er-niets/

Reclame Fossielvrij. (2022, May 24). *Advertising Fossielvrij supports Fossielvrij NL in lawsuit misleading advertising KLM*. Retrieved September 28, 2022, from https://verbiedfossielereclame.nl/reclame-fossielvrij-ondersteunt-fossielvrij-nl-bij-rechtszaak-misleidende-reclames-klm/

Reclame Fossielvrij. (2022, September 29). *"Maak Springtij fossielvrij" – prominenten boycotten festival, klimaatgroepen voeren actie in haven Harlingen.* Retrieved November 4, 2022, from https://verbiedfossielereclame.nl/springtij-2022/

Reclame Fossielvrij. (2022, October 10). *Oproep: open natuurfilmfestival niet met film van BP en Shell*. Retrieved November 4, 2022, from https://verbiedfossielereclame.nl/oproep-open-natuurfilmfestival-niet-met-film-van-bp-en-shell/

Ridge, J.W., Ingram, A. & Hill, A.D. (2016). Beyond Lobbying Expenditures: How Lobbying Breadth and Political Connectedness Affect Firm Outcomes. *Academy of Management Journal, 60*(3). https://doi.org/10.5465/amj.2015.0584

Rietig, K. (2014.) Reinforcement of multilevel governance dynamics: creating momentum for increasing ambitions in international climate negotiations. *Int Environ Agreements, 14*, 371–389. https://doi.org/10.1007/s10784-014-9239-4

Sabin Center for Climate Change Law. (n.d. -a). *Misleading advertisement*. Retrieved September 28, 2022, from http://climatecasechart.com/non-us-case-category/misleading-advertising/

Sabin Center for Climate Change Law. (n.d. -b). *FossielVrij NL v. KLM*. Retrieved September 28, 2022, from http://climatecasechart.com/non-us-case/fossielvrij-nl-v-klm/

Sabin Center for Climate Change Law. (n.d. -c). *Advertising Standards Authority's Ruling on Shell UK Ltd.'s Shell Go+ Campaign*. Retrieved September 28, 2022, from http://climatecasechart.com/non-us-case/advertising-standards-authoritys-ruling-on-shell-uk-ltds-shell-go-campaign/

Sanders, A. J., Hyldmo, H. D. S., Prasti H., R. D., Ford, R. M., Larson, A. M., & Keenan, R. J. (2017). Guinea pig or pioneer: Translating global environmental objectives through to local actions in Central Kalimantan, Indonesia's REDD+ pilot province. *Global Environmental Change*, *42*, 68–81. https://doi.org/10.1016/j.gloenvcha.2016.12.003

Scanlan, S. J. (2017). Framing fracking: scale-shifting and greenwashing risk in the oil and gas industry. *Local Environment*, *22*(11), 1311–1337. https://doi.org/10.1080/13549839.2017.1345877

Shell. (2022, May 24). *Notice of Annual General Meeting.* https://www.shell.com/investors/shareholder-meetings/_jcr_content/par/textimage.stream/1652452737994/f33e9e1de33027af8aae7b5ca3617c9ef5734cd2/notice-of-meeting-2022.pdf?mc_cid=cf20966de7&mc_eid=f4002d9715

Smith-Anthony, A., & Groom, J. (2015). Brandalism and subvertising: Hoisting brands with their own petard? *Journal of Intellectual Property Law and Practice, 10*(1), 29–34. https://doi.org/10.1093/jiplp/jpu207

Spelling Mistakes Cost Lives. (n.d.). *Subvertising | Projects | Darren Cullen*. Retrieved November 4, 2022, from https://www.spellingmistakescostlives.com/subvertising

Stichting Reclame Code (n.d. -a). *Milieu Reclame Code (MRC).* Retrieved October 11, 2022, from https://www.reclamecode.nl/nrc/milieu-reclame-code-mrc/

Stichting Reclame Code. (n.d. -b). *Afhandeling van klachten in cijfers*. Retrieved October 12, 2022, from https://www.reclamecode.nl/cijfers-sub/

Stichting Reclame Code. (n.d. -c). *Hoe dien ik een klacht in?* Retrieved November 1, 2022, from https://www.reclamecode.nl/hoe-dien-ik-een-klacht-in/

Stichting Reclame Code. (n.d. -d). *De behandeling van een klacht*. Retrieved November 1, 2022, from https://www.reclamecode.nl/nrc/7-de-behandeling-van-een-klacht/

Stichting Reclame Code. (n.d. -e). *De kosten van het indienen van een klacht, bezwaar of beroep*. Retrieved November 1, 2022, from https://www.reclamecode.nl/nrc/6-de-kosten-van-het-indienen-van-een-klacht-bezwaar-of-beroep/

Siano, A., Vollero, A., Conte, F., & Amabile, S. (2017). "More than words": Expanding the taxonomy of greenwashing after the Volkswagen scandal. *Journal of Business Research, 71*, 27-37. http://dx.doi.org/10.1016/j.jbusres.2016.11.002

Sutton, I. (2022, September 23). *Company climate claims in court: Pending cases will shape future of 'net zero' pledges*. Clean Energy Wire CLEW. Retrieved September 28, 2022, from https://www.cleanenergywire.org/factsheets/company-climate-claims-court-pending-cases-will-shape-future-net-zero-pledges

The Drum. (2020, March 3). *Shell Faces ASA Investigation Over 'drive Carbon Neutral' Claims*. Retrieved November 4, 2022, from https://www.thedrum.com/news/2020/03/03/shell-faces-asa-investigation-over-drive-carbon-neutral-claims

Tong, D., Zhang, Q., Zheng, Y., Caldeira, K., Shearer, C., Hong, C., Qin, Y., Davis, S.J. (2019). Committed emissions from existing energy infrastructure jeopardize 1.5 °C climate target. *Nature, 572*, 373-377. https://doi.org/10.1038/s41586-019-1364-3

UNFCCC. (n.d.). *The Paris Agreement*. Retrieved October 21, 2022, from https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement

Yu, E. P. Y., Luu, B. V., & Chen, C. H. (2020, April). Greenwashing in environmental, social and governance disclosures. *Research in International Business and Finance, 52*, 101192. https://doi.org/10.1016/j.ribaf.2020.101192
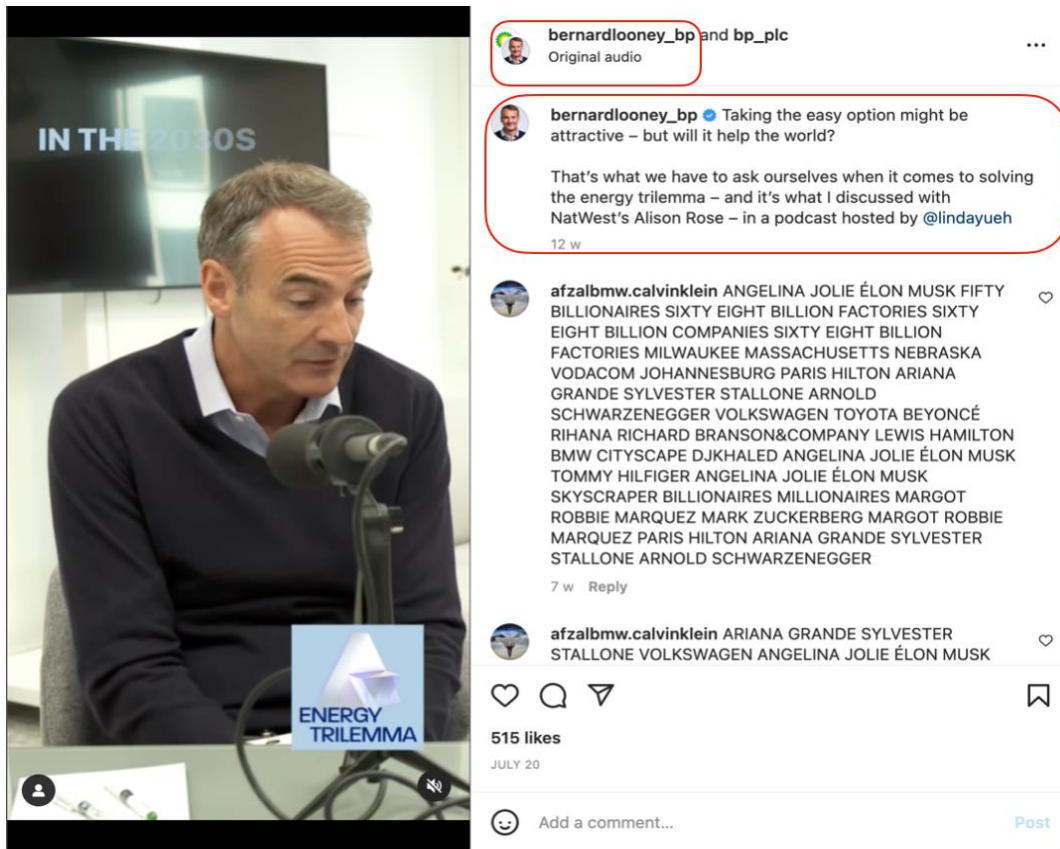
Annex A: Examples of evidence pieces

Figure A1.
Collab Post feature on Instagram.

Figure A2.
Image with written message on an Instagram post.

Annex B: Examples of successful cases based on the false ground of carbon neutrality

Table B1.
Examples of cases by the RCC that build up on each other

No.	Example case	Organisation	Ground of accusation	Link	Notes
1.	Shell claiming carbon neutral driving through a compensation scheme	RCC (2021/00190)	The claim to be able to let drivers that tank at Shell drive carbon neutral was found to be ungrounded	https://www.reclamecode.nl/uitspraken/resultaten/vervoer-2021-00190/304997/	The ruling in this Shell case was used as an example for other cases (such as in no. 2&3)
2.	Arla claiming their products to be climate neutral	RCC	The claim to be climate neutral through means of carbon credits was found to be ungrounded	https://www.reclamecode.nl/uitspraken/shell/voeding-en-drank-2021-00472-cvb/335095/	This case used shell case 2021/00190 by RCC as an example (no. 1)
3.	KLM claiming that people can fly co2 zero through their co2 compensation scheme	RCC	Claim about flying with zero co2 - through compensation was found to be ungrounded	https://www.reclamecode.nl/uitspraken/shell/reizen-en-toerisme-2021-00553/338478/	This case used shell case 2021/00190 by RCC as an example (no. 1)

Annex C: Narrative trends over time

Figure C1.
7-day running average of daily posting frequency for all supermajors for 2021 and 2022.
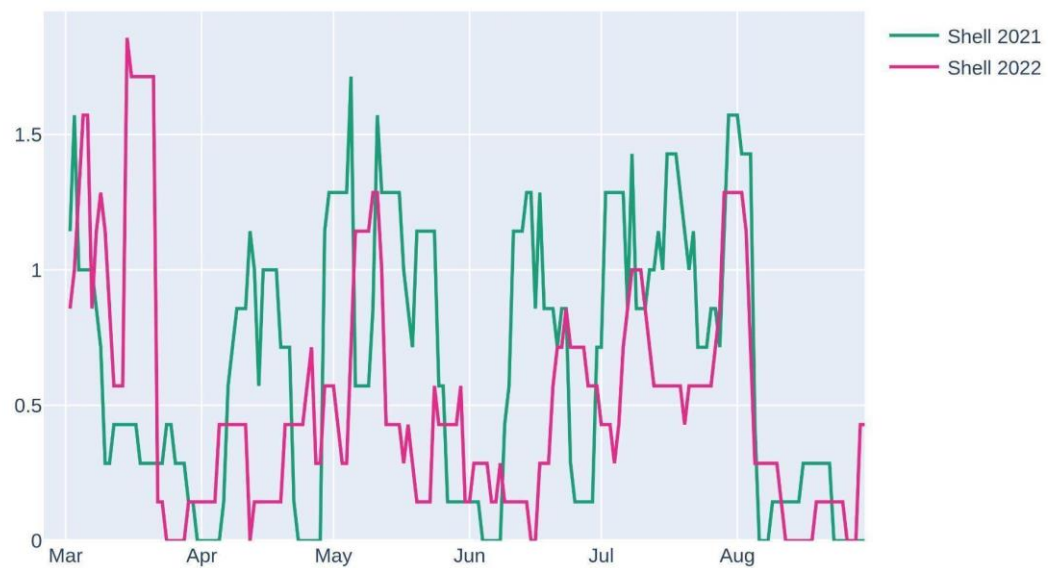

Figure C2.
7-day running average of daily posting frequency for BP for 2021 and 2022.
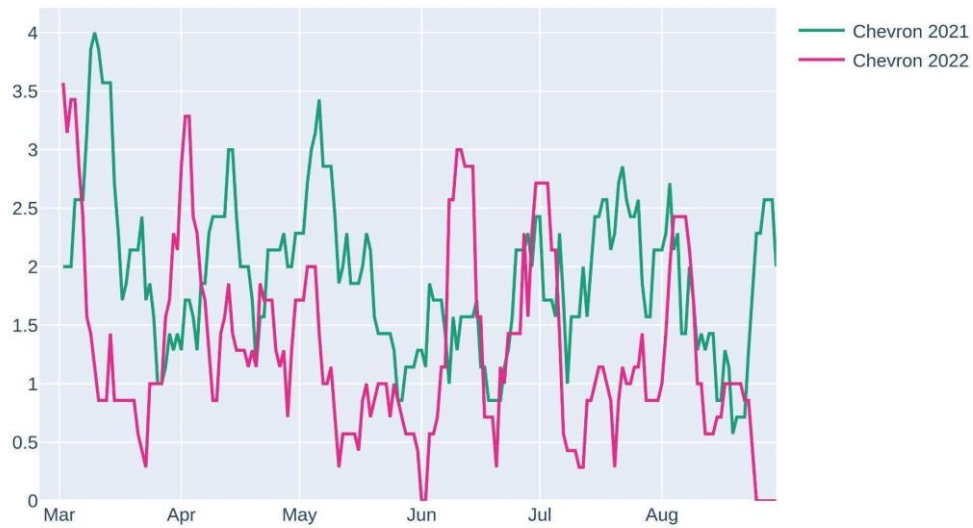
Figure C3.
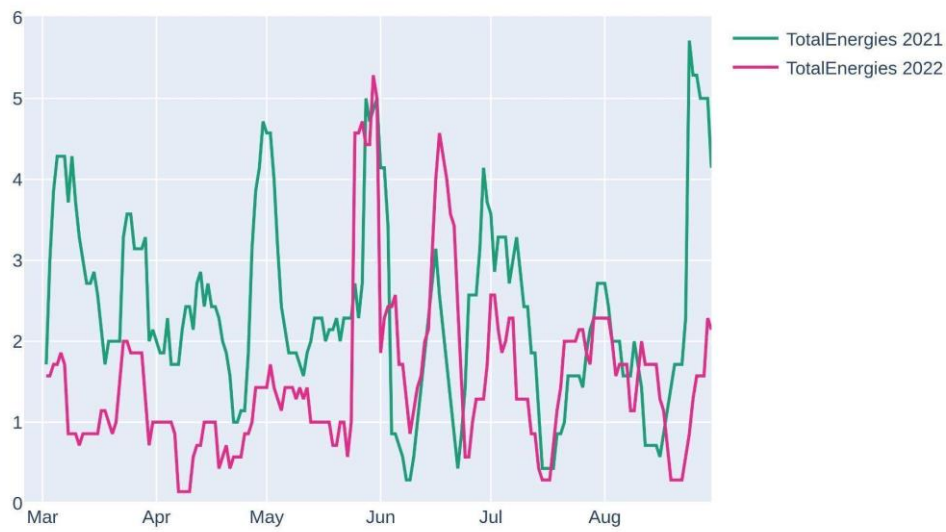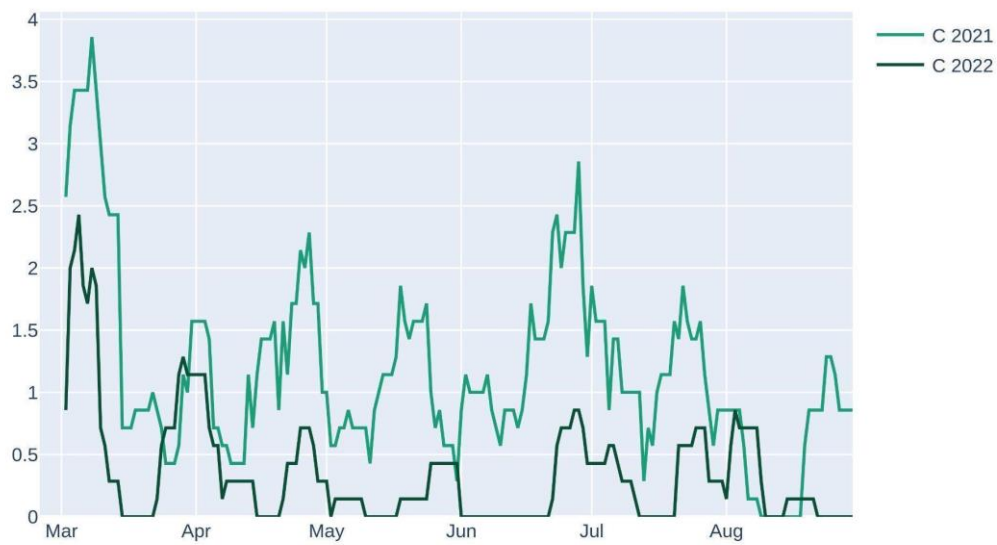7-day running average of daily posting frequency for Chevron for 2021 and 2022.

Figure C4.
7-day running average of daily posting frequency for European majors for 2021 and 2022.
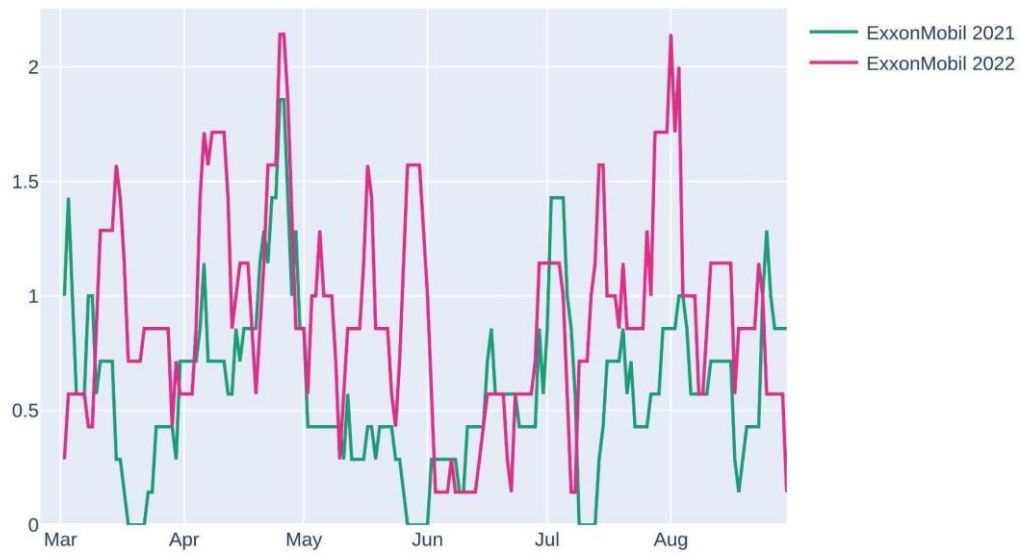
Figure C5.
7-day running average of daily posting frequency for ExxonMobil for 2021 and 2022.

Figure C6.
7-day running average of daily posting frequency for Shell for 2021 and 2022.

Figure C7.
7-day running average of daily posting frequency for TotalEneries for 2021 and 2022.

Figure C8.
7-day running average of daily posting frequency for US majors for 2021 and 2022.

Figure C9.
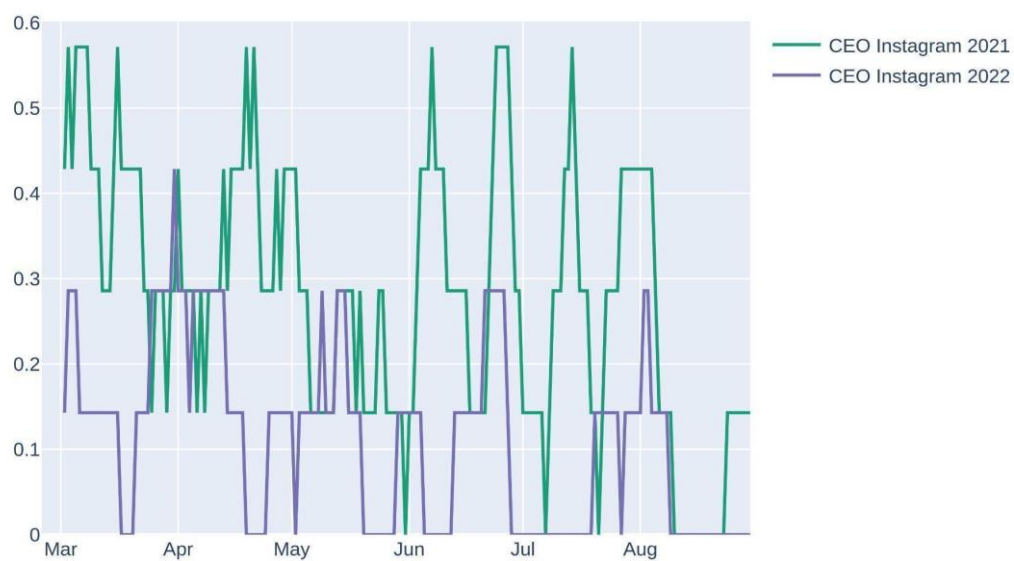7-day running average of daily posting frequency for the *community & economy* narrative for all supermajors for 2021 and 2022.
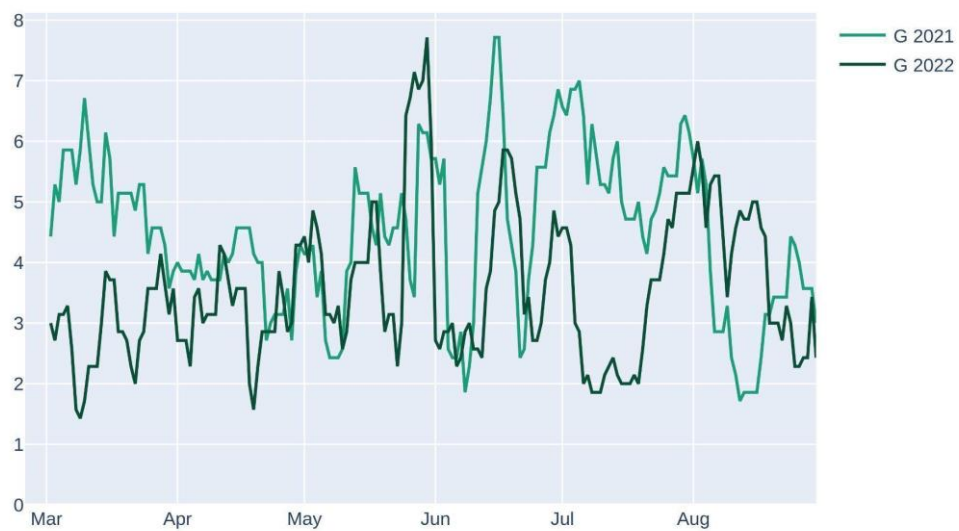
Figure C10.
7-day running average of daily posting frequency for the *climate solutions* narrative for all supermajors for 2021 and 2022.
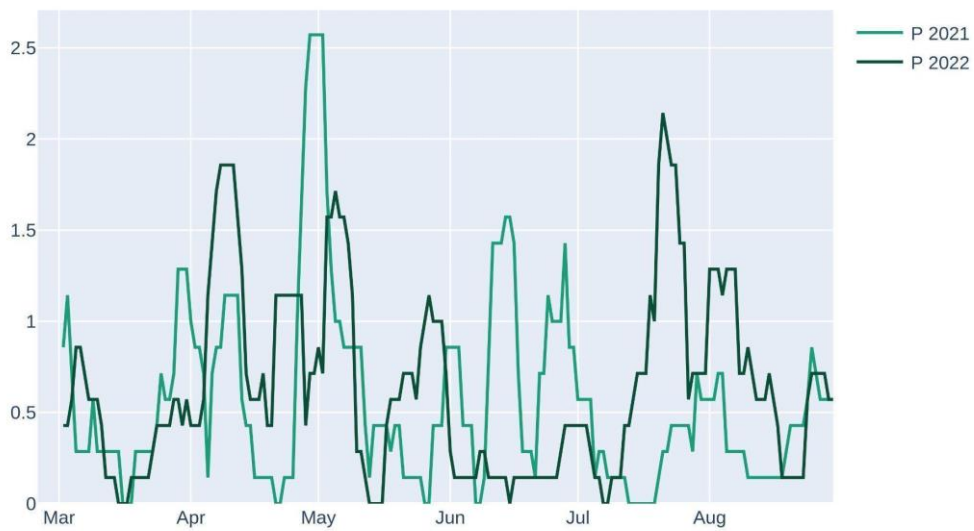
Figure C11.
7-day running average of daily posting frequency for the *pragmatic energy mix* narrative for all supermajors for 2021 and 2022.
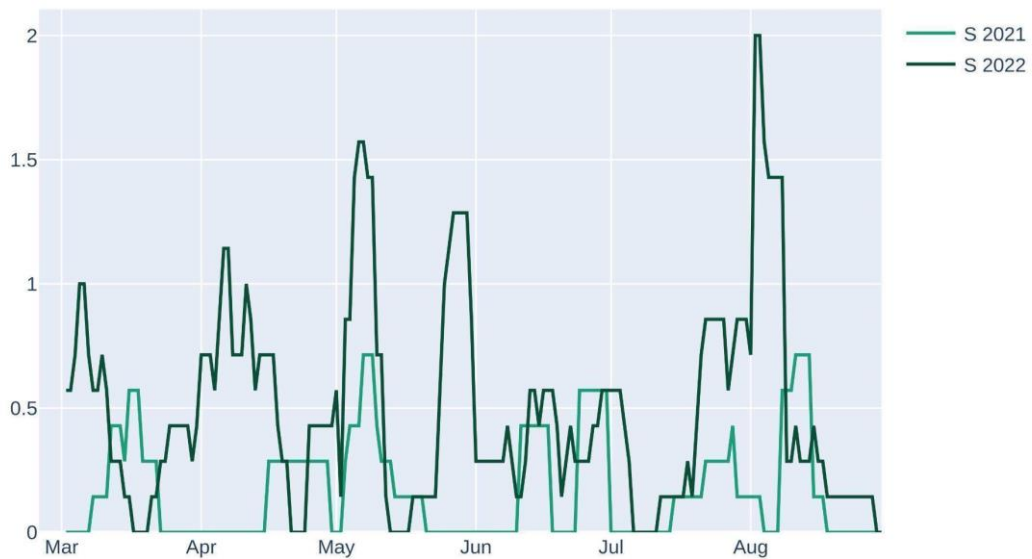
Figure C12.
7-day running average of daily posting frequency for the *patriotism* narrative for all supermajors for 2021 and 2022.

Figure C13.
7-day running average of daily posting frequency for the CEO Instagram accounts for all supermajors for 2021 and 2022.
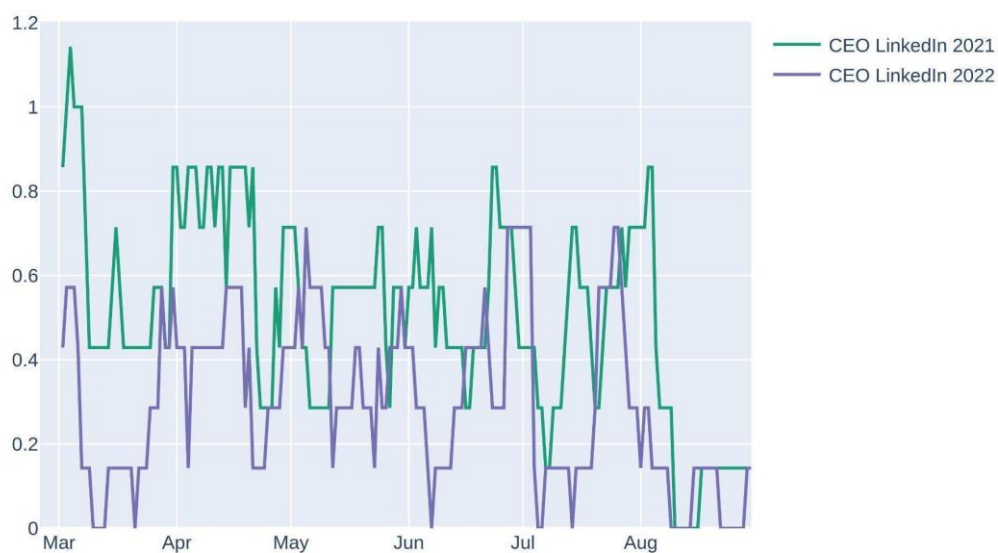

Figure C14.
7-day running average of daily posting frequency for the CEO LinkedIn accounts for all supermajors for 2021 and 2022.
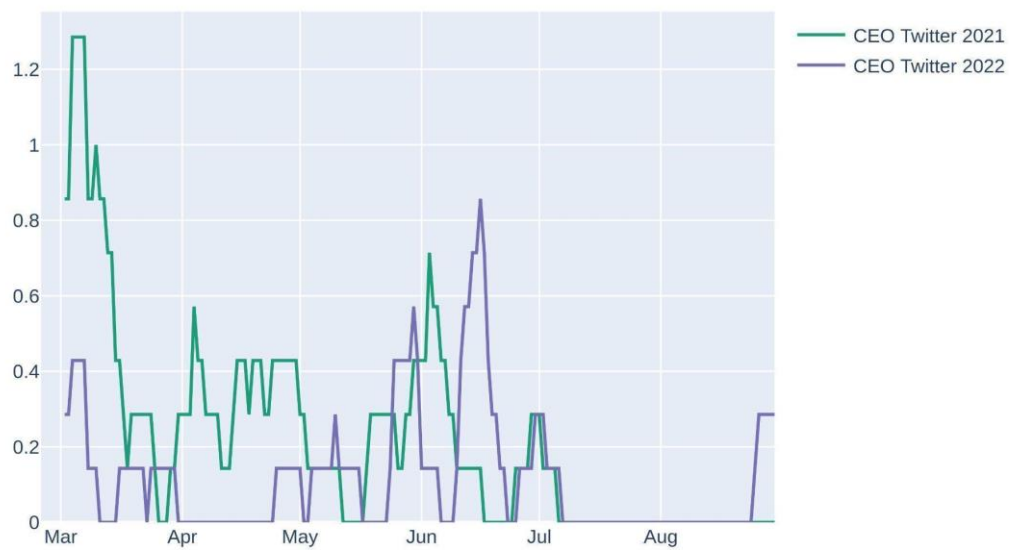
Figure C15.
7-day running average of daily posting frequency for the CEO Twitter accounts for all supermajors for 2021 and 2022.
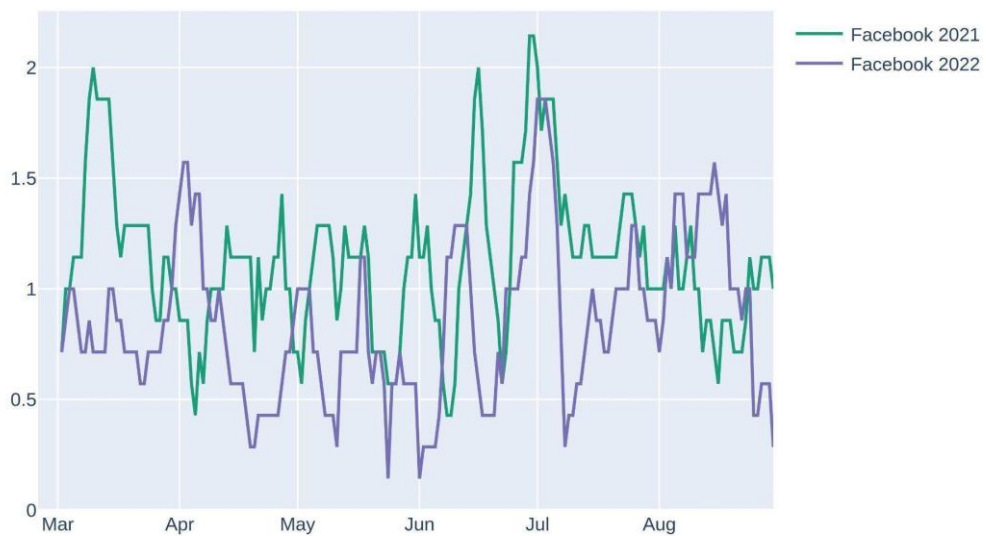

Figure C16.
7-day running average of daily posting frequency for the Facebook accounts for all supermajors for 2021 and 2022.
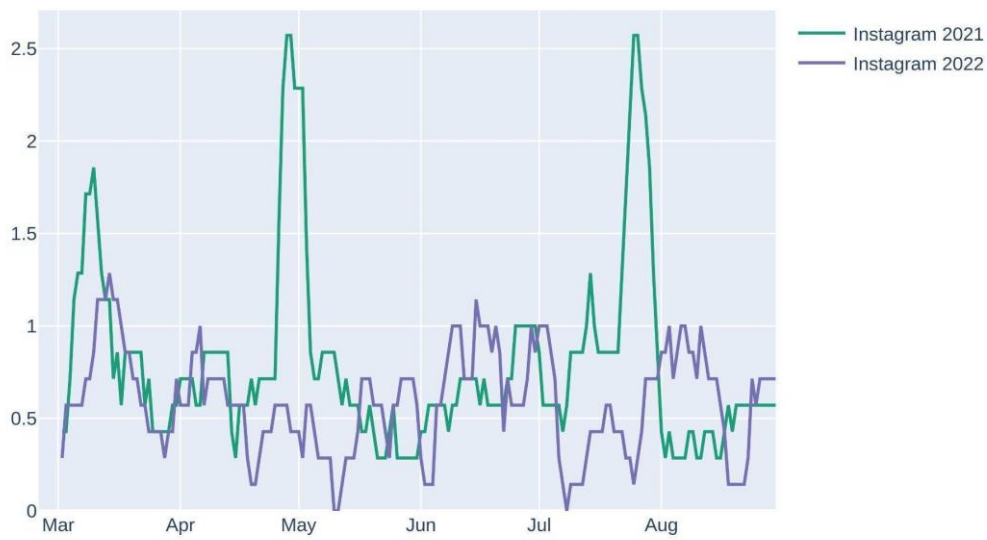
Figure C17.
7-day running average of daily posting frequency for the Instagram accounts for all supermajors for 2021 and 2022.
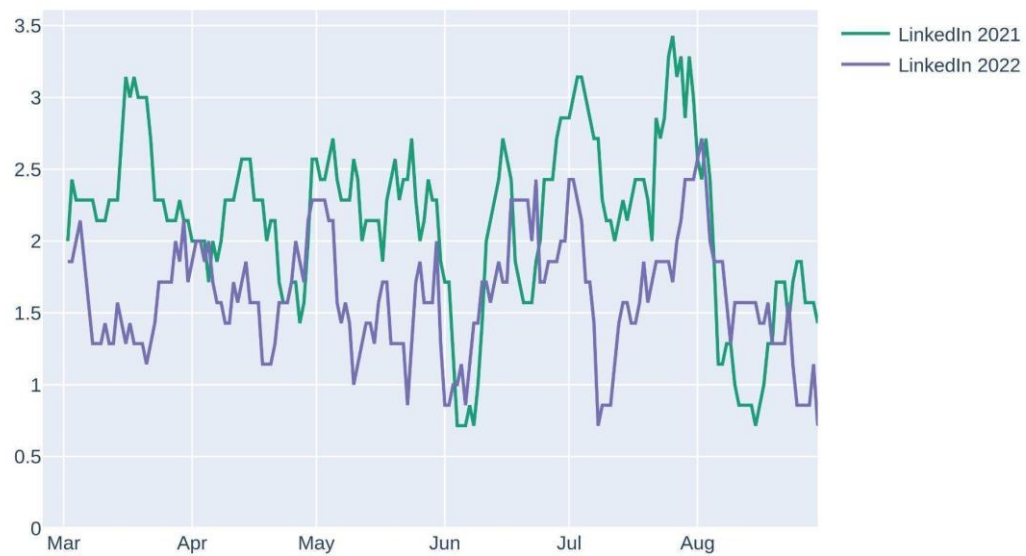

Figure C18.
7-day running average of daily posting frequency for the LinkedIn accounts for all supermajors for 2021 and 2022.
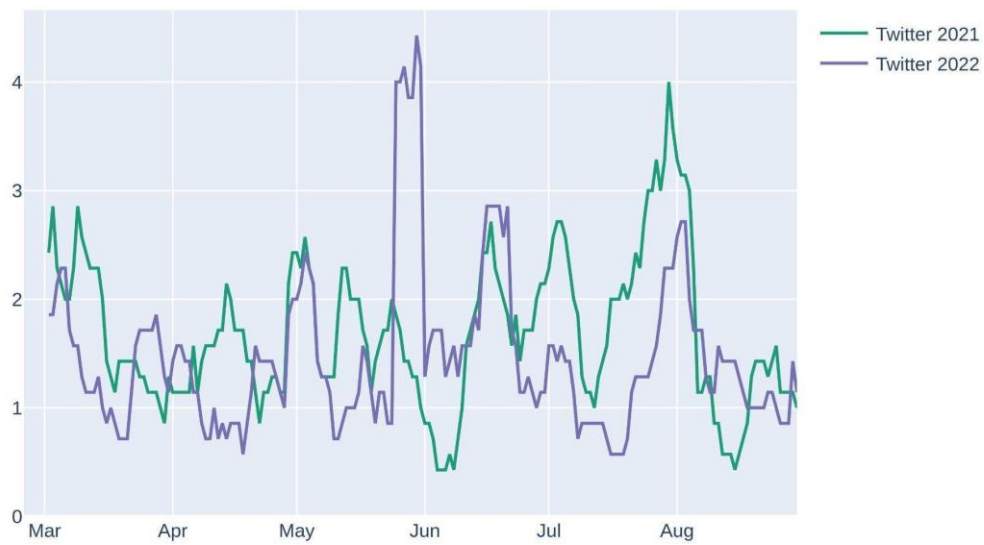
Figure C19.
7-day running average of daily posting frequency for the Twitter accounts for all supermajors for 2021 and 2022.
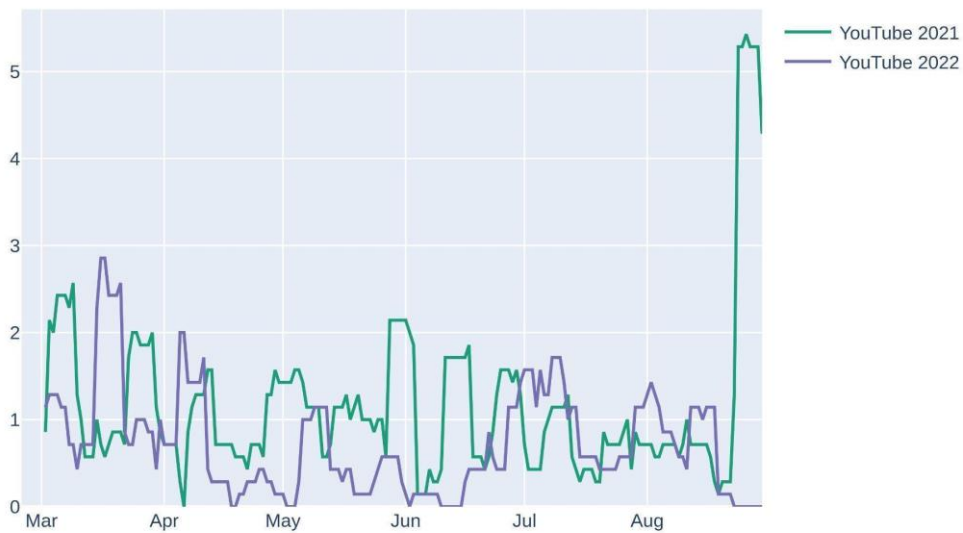

Figure C20.
7-day running average of daily posting frequency for the YouTube accounts for all supermajors for 2021 and 2022.

Figure C21.
14-day running average of daily posting frequency for all supermajors for 2021 and 2022.

Figure C22.
14-day running average of daily posting frequency for BP for 2021 and 2022.

Figure C23.
14-day running average of daily posting frequency for Chevron for 2021 and 2022.

Figure C24.
14-day running average of daily posting frequency for European majors for 2021 and 2022.

Figure C25.
14-day running average of daily posting frequency for ExxonMobil for 2021 and 2022.

Figure C26.
14-day running average of daily posting frequency for Shell for 2021 and 2022.

Figure C27.
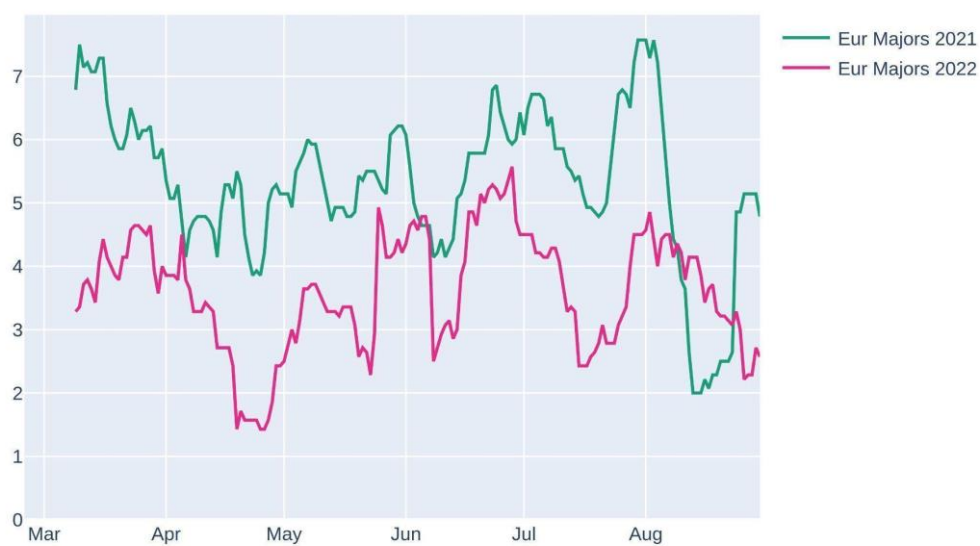14-day running average of daily posting frequency for TotalEnergies for 2021 and 2022.

Figure C28.
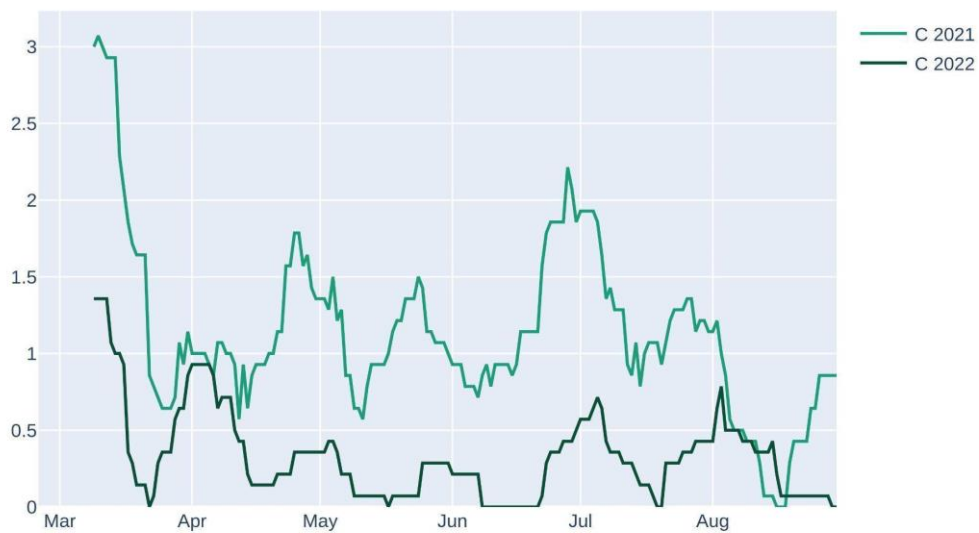14-day running average of daily posting frequency for US majors for 2021 and 2022.

Figure C29.

14-day running average of daily posting frequency for the *community & economy* narrative for all supermajors for 2021 and 2022.

Figure C30.

14-day running average of daily posting frequency for the *climate solutions* narrative for all supermajors for 2021 and 2022.

Figure C31.
14-day running average of daily posting frequency for the *pragmatic energy mix* narrative for all supermajors for 2021 and 2022.

Figure C32.
14-day running average of daily posting frequency for the *patriotism* narrative for all supermajors for 2021 and 2022.

Figure C33.
14-day running average of daily posting frequency for the CEO Instagram accounts for all supermajors for 2021 and 2022.

Figure C34.
14-day running average of daily posting frequency for the CEO LinkedIn accounts for all supermajors for 2021 and 2022.

Figure C35.
14-day running average of daily posting frequency for the CEO Twitter accounts for all supermajors for 2021 and 2022.

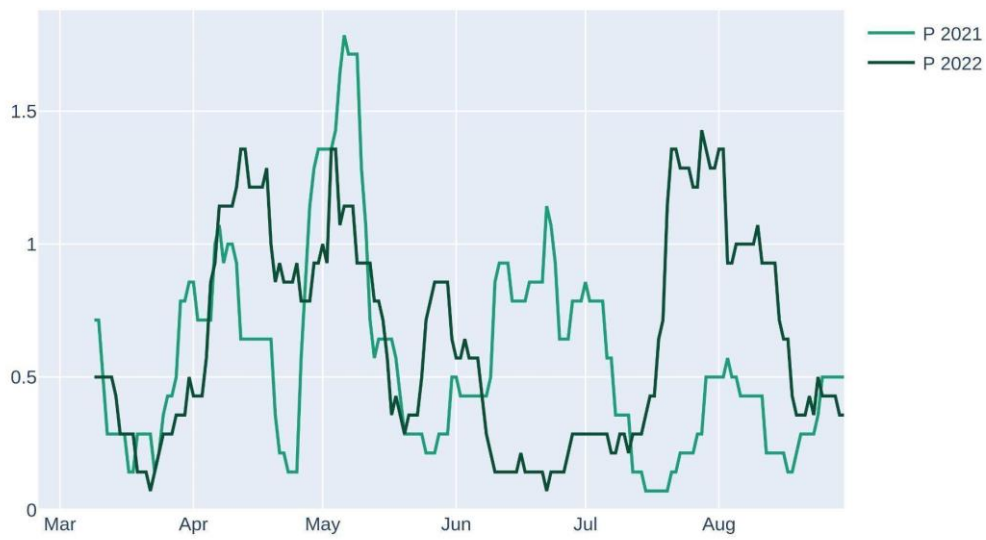**Figure C36.**
14-day running average of daily posting frequency for the Facebook accounts for all supermajors for 2021 and 2022.
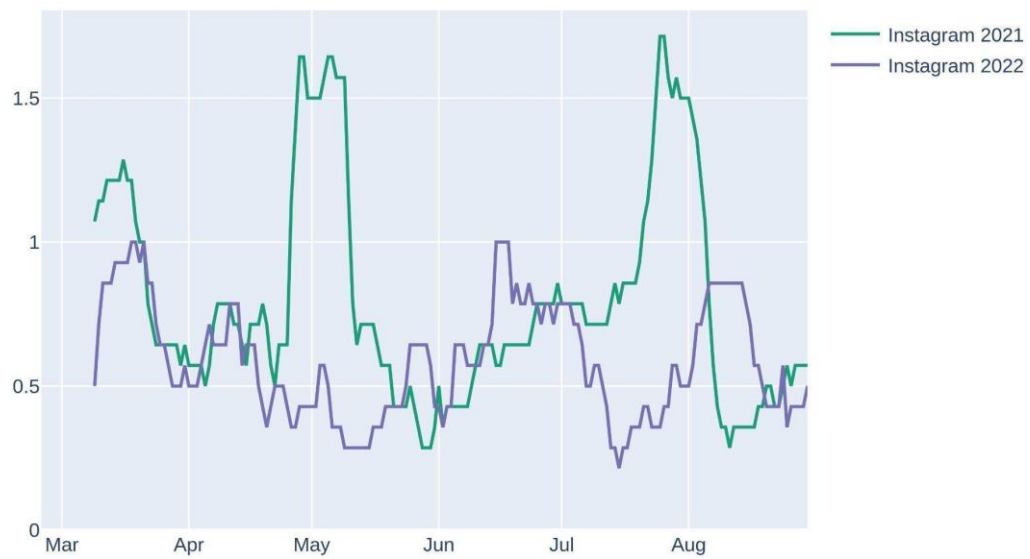
Figure C37: 14-day running average of daily posting frequency for the Instagram accounts for all supermajors for 2021 and 2022.

Figure C38.
14-day running average of daily posting frequency for the LinkedIn accounts for all supermajors for 2021 and 2022.
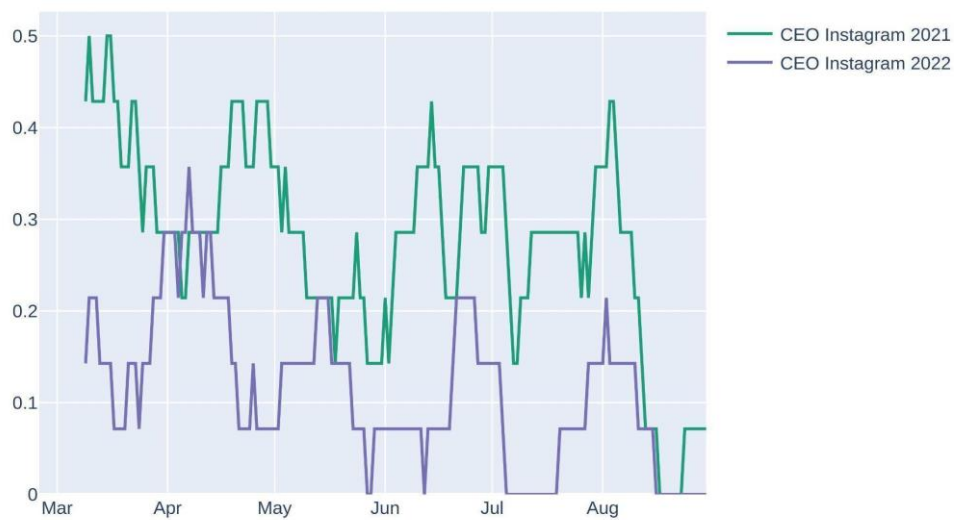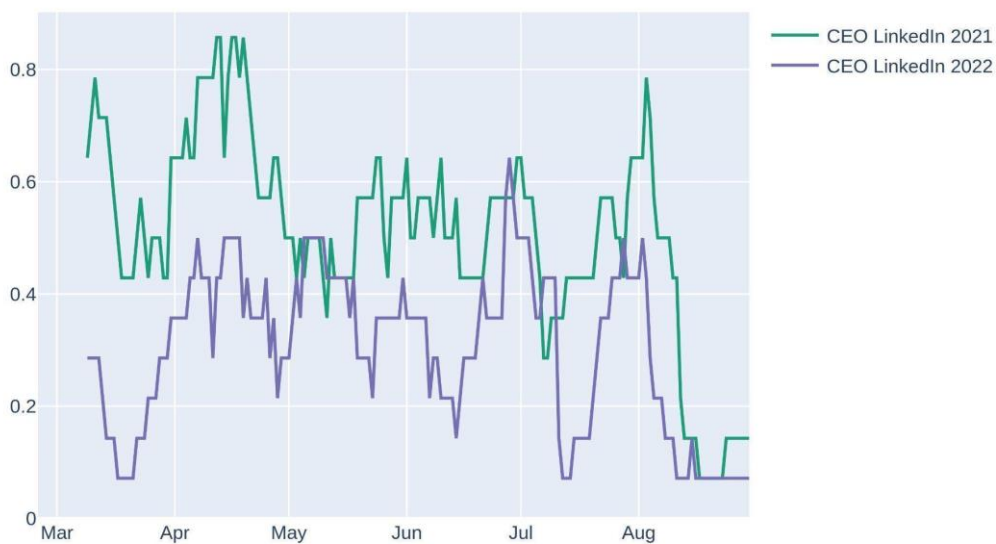
Figure C39.
14-day running average of daily posting frequency for the Twitter accounts for all supermajors for 2021 and 2022.

Figure C40.
14-day running average of daily posting frequency for the YouTube accounts for all supermajors for 2021 and 2022.
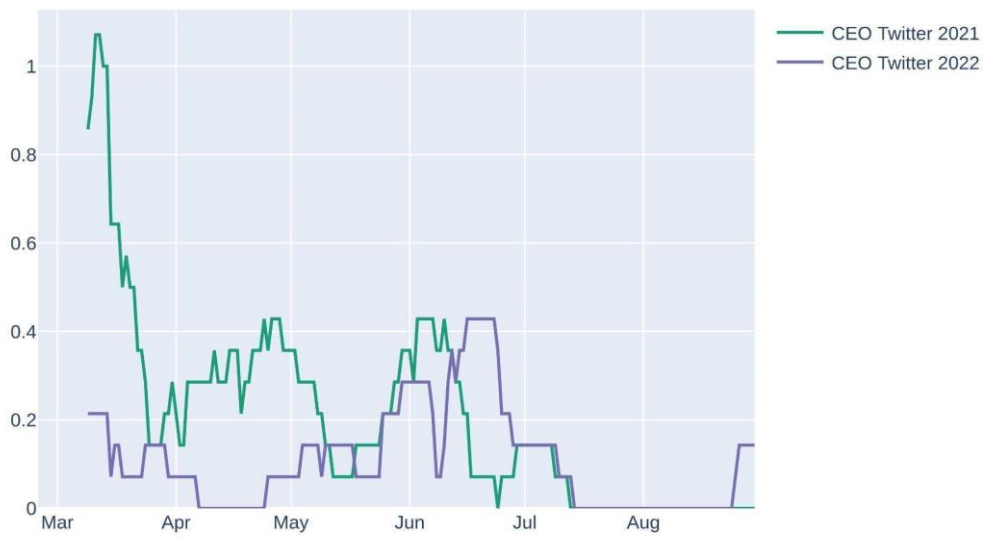
Figure C41.
28-day running average of daily posting frequency for all supermajors for 2021 and 2022.

Figure C42.
28-day running average of daily posting frequency for BP for 2021 and 2022.

Figure C43.

28-day running average of daily posting frequency for Chevron for 2021 and 2022.

Figure C44.

28-day running average of daily posting frequency for European majors for 2021 and 2022.

Figure C45.
28-day running average of daily posting frequency for ExxonMobil for 2021 and 2022.

Figure C46.
28-day running average of daily posting frequency for Shell for 2021 and 2022.

Figure C47.
28-day running average of daily posting frequency for TotalEnergies for 2021 and 2022.

Figure C48.
28-day running average of daily posting frequency for US majors for 2021 and 2022.

Figure C49.
28-day running average of daily posting frequency for the *community & economy* narrative for all supermajors for 2021 and 2022.

Figure C50.
28-day running average of daily posting frequency for the *climate solutions* narrative for all supermajors for 2021 and 2022.

Figure C51.
28-day running average of daily posting frequency for the *pragmatic energy mix* narrative for all supermajors for 2021 and 2022.

Figure C52.
28-day running average of daily posting frequency for the *patriotism* narrative for all supermajors for 2021 and 2022.

Figure C53.
28-day running average of daily posting frequency for the CEO Instagram accounts for all supermajors for 2021 and 2022.

Figure C54.
28-day running average of daily posting frequency for the CEO LinkedIn accounts for all supermajors for 2021 and 2022.

Figure C55.
14-day running average of daily posting frequency for the CEO Twitter accounts for all supermajors for 2021 and 2022.

Figure C56.
28-day running average of daily posting frequency for the Facebook accounts for all supermajors for 2021 and 2022.

Figure C57.
28-day running average of daily posting frequency for the Instagram accounts for all supermajors for 2021 and 2022.

Figure C58.
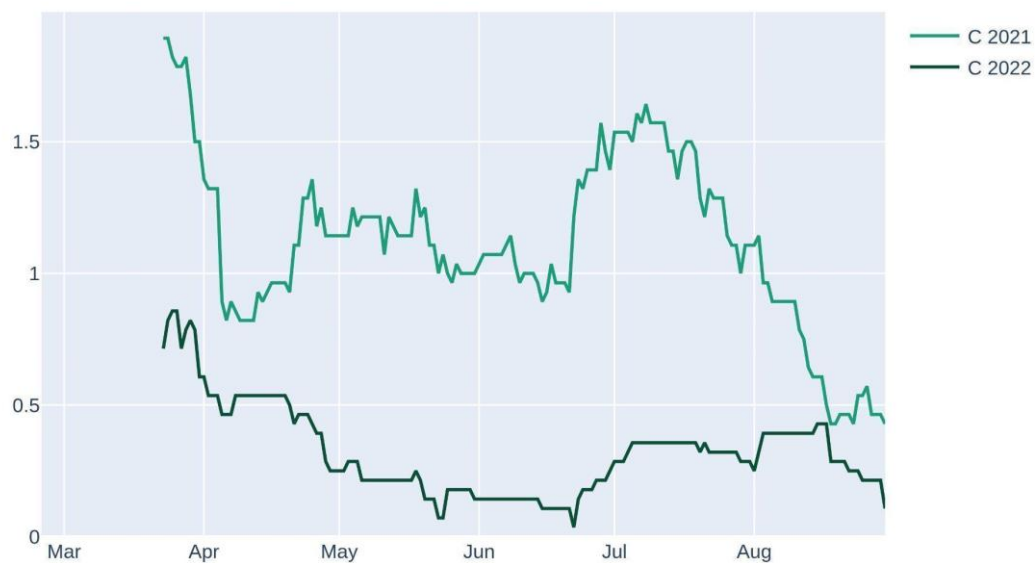14-day running average of daily posting frequency for the LinkedIn accounts for all supermajors for 2021 and 2022.
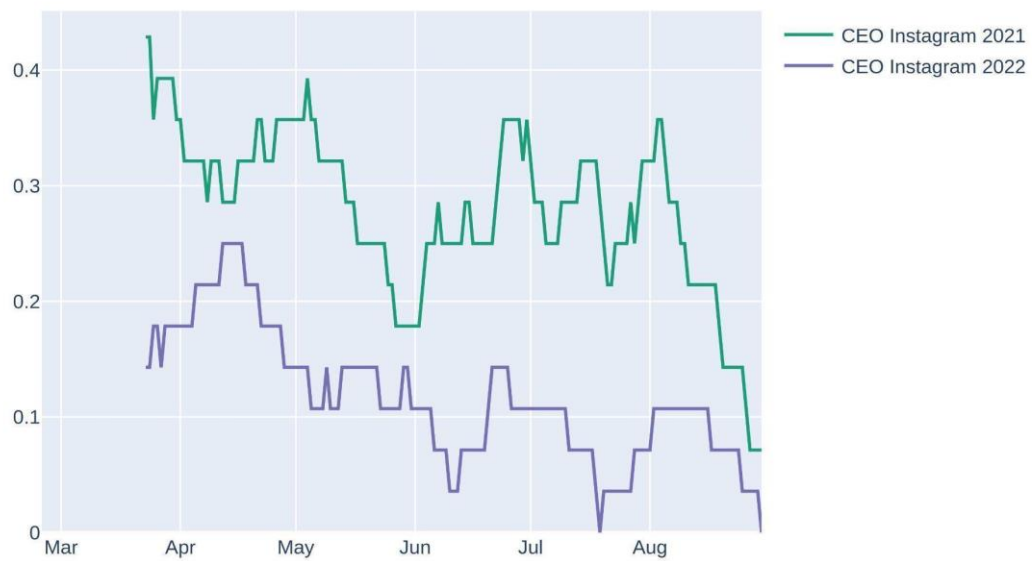
Figure C59.
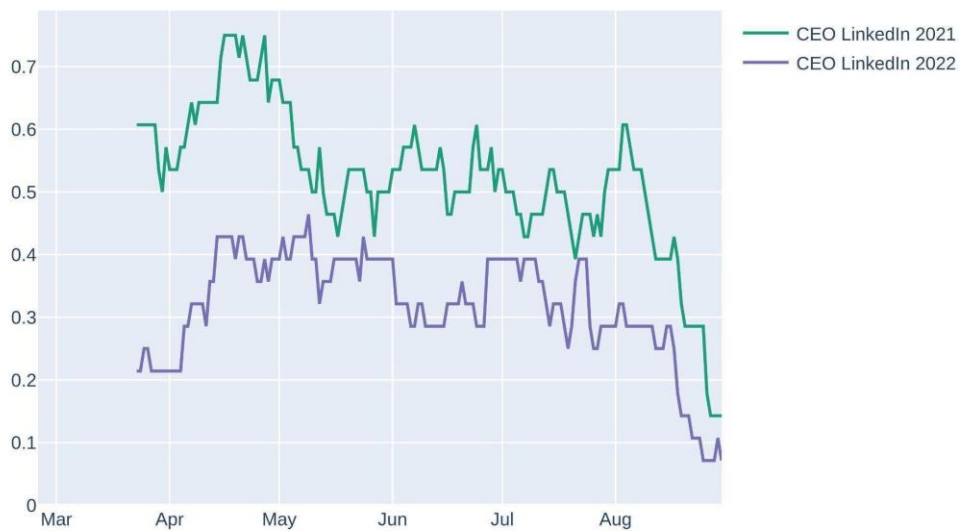28-day running average of daily posting frequency for the Twitter accounts for all supermajors for 2021 and 2022.
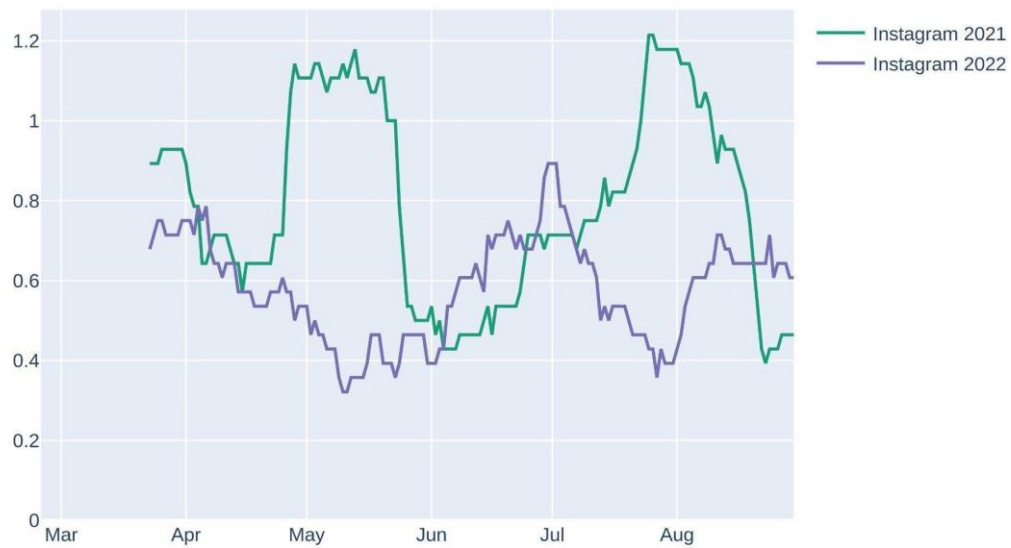

Figure C60.
28-day running average of daily posting frequency for the YouTube accounts for all supermajors for 2021 and 2022.

Annex D: Significance tests

Change in share of narratives between 2021 and 2022 for all supermajors

(note: definitions of the narratives are provided in Table 3)

There is statistical significance with p=6.38e-12 for narrative: C

The percentage of C claims in 2021 is 14.8% and in 2022 6.1%

There is statistical significance with p=2.50e-02 for narrative: G

The percentage of G claims in 2021 is 56.6% and in 2022 61.1%

There is statistical significance with p=2.55e-03 for narrative: P

The percentage of P claims in 2021 is 7.3% and in 2022 10.8%

There is statistical significance with p=2.74e-13 for narrative: S

The percentage of S claims in 2021 is 2.1% and in 2022 8.4%

Change in share of narratives between 2021 and 2022 for BP

There is statistical significance with p=1.82e-06 for narrative: C

The percentage of C claims in 2021 is 16.7% and in 2022 4.6%

No significance (p = 0.188) for narrative: G

There is statistical significance with p=9.07e-09 for narrative: P

The percentage of P claims in 2021 is 0.2% and in 2022 8.5%

There is statistical significance with p=9.40e-12 for narrative: S and major: BP

The percentage of S claims in 2021 is 0.0% and in 2022 10.6%

Change in share of narratives between 2021 and 2022 for Chevron

There is statistical significance with p=2.42e-02 for narrative: C

The percentage of C claims in 2021 is 24.7% and in 2022 16.7%

No significance (p = 0.2747) for narrative: G

No significance (p = 0.899) for narrative: P

No significance (p = 0.3663) for narrative: S

Change in share of narratives between 2021 and 2022 for ExxonMobil

There is statistical significance with p=2.70e-06 for narrative: C

The percentage of C claims in 2021 is 22.1% and in 2022 3.6%

There is statistical significance with p=1.84e-03 for narrative: G

The percentage of G claims in 2021 is 60.2% and in 2022 78.1%

No significance (p = 0.3324) for narrative: P

No significance (p = 0.0649) for narrative: S

Change in share of narratives between 2021 and 2022 for Shell

No significance (p = 0.6824) for narrative: C

There is statistical significance with p=5.41e-03 for narrative: G

The percentage of G claims in 2021 is 72.1% and in 2022 53.1%

There is statistical significance with p=8.96e-03 for narrative: P

The percentage of P claims in 2021 is 0.0% and in 2022 7.1%

There is statistical significance with p=5.65e-05 for narrative: S

The percentage of S claims in 2021 is 0.8% and in 2022 16.3%

Change in share of narratives between 2021 and 2022 for TotalEnergies

There is statistical significance with p=9.83e-04 for narrative: C

The percentage of C claims in 2021 is 5.0% and in 2022 0.3%

No significance (p = 0.6398) for narrative: G

No significance (p = 0.2412) for narrative: P

There is statistical significance with p=9.42e-07 for narrative: S

The percentage of S claims in 2021 is 0.0% and in 2022 5.9%

Change in share of narratives between 2021 and 2022 for US majors

There is statistical significance with p=1.38e-06 for narrative: C

The percentage of C claims in 2021 is 24.1% and in 2022 11.3%

There is statistical significance with p=8.41e-05 for narrative: G

The percentage of G claims in 2021 is 45.4% and in 2022 58.8%

No significance (p = 0.4055) for narrative: P

No significance (p = 0.908) for narrative: S

Change in share of narratives between 2021 and 2022 for European majors

There is statistical significance with p=1.04e-08 for narrative: C

The percentage of C claims in 2021 is 10.5% and in 2022 2.8%

No significance (p = 0.837) for narrative: G

There is statistical significance with p=5.26e-03 for narrative: P

The percentage of P claims in 2021 is 4.2% and in 2022 7.5%

There is statistical significance with p=7.21e-22 for narrative: S

The percentage of S claims in 2021 is 0.1% and in 2022 9.4%

Change in share of narratives between US majors and European majors in 2021

There is statistical significance with p=1.15e-11 for narrative: C

The percentage of C claims in US majors is 24.1% and of European majors 10.5%

There is statistical significance with p=2.65e-09 for narrative: G

The percentage of G claims in US majors is 45.4% and of European majors 62.0%

There is statistical significance with p=3.87e-11 for narrative: P

The percentage of P claims in US majors is 13.9% and of European majors 4.2%

There is statistical significance with p=2.82e-14 for narrative: S

The percentage of S claims in US majors is 6.3% and of European majors 0.1%

Change in share of narratives between US majors and European majors in 2022

There is statistical significance with p=3.00e-08 for narrative: C

The percentage of C claims in US majors is 11.3% and of European majors 2.8%

No significance (p = 0.2394) for narrative: G in year: 2022 between European and US majors

There is statistical significance with p=1.29e-05 for narrative: P

The percentage of P claims in US majors is 16.1% and of European majors 7.5%

No significance (p = 0.1512) for narrative: S in year: 2022 between European and US majors

Annex E: Examples of subvertising

Figure E1.
Subvertising poster playing on a Shell advertisement (Spelling Mistakes Cost Lives, n.d.)

Figures E2 & E3.
Subvertising by action group Brandalism during the run up to COP26, advocating for a ban on fossil ads with the hashtag "BanFossilAds" (AdFree Cities, n.d.)

Figure E4.
Subvertising action by ReclameFossielvrij (24/09/2022)

Annex F: Evaluation of the strategies

<u>Reporting on corporate greenwashing</u>

    a.   Direct impact

Reporting on corporate greenwashing has a low direct impact. The goal of the strategy is to provide information and expose companies to their lobbying and greenwashing activities. It is a tool for other parties to use to make better decisions and be informed. Therefore, this strategy does not have any direct impact as the strategy does not result in specific companies taking action to revoke their greenwashing.

    b.   Indirect impact

Reporting on corporate greenwashing has a high indirect impact. As this strategy aims to provide information, it can be very successful if done correctly. In the case of InfluenceMap's tools and platforms provide facts and information to the general public and especially investors, therefore raising awareness of the company's harmful activities so that they can gain knowledge and take action. According to its website, the information provided by InfluenceMap has been referenced in more than 2,000 media publications worldwide and is now a widely used investor tool for evaluating and interacting with businesses, including the Climate Action 100+ process. It supports many NGO activities and encourages corporate sector participation in climate policy (InfluenceMap, n.d. -d).

    c.   Time

Reporting on corporate greenwashing requires a lot of time. In the specific case of InfluenceMap, years have been invested in the creation of these tools and platforms. Moreover, a team of experts are continuously working into improving these tools, writing reports and expanding the platforms. However, it is also important to remark that once these tools are developed, they are suitable for usage even while simultaneously needing maintenance and improvement.

    d.   Financial resources

Reporting on corporate greenwashing requires a lot of financial resources. Many people are required to work on the development of tools and platforms that will successfully communicate the information hired to properly develop the tools and platforms. InfluenceMap has a platform of 67 paid workers (InfluenceMap, n.d. -e).

    e.   Expertise/skills

Reporting on corporate greenwashing requires a lot of expertise and skills. The expertise required to the development and to implement these strategies is extensive, as professional personnel are required to develop the tools and platforms. Program managers, data intelligence, analysts, strategy managers, operation managers, country managers, technical directors, finance administrators, people and culture managers and advisory groups are needed for sufficient results.

<u>Advocating for a ban on fossil fuel advertisement</u>

For this strategy, the evaluation will be divided between advocating at a local scale and advocating at national and global scale, as the impacts and resources necessary differ significantly among scales.

<u>Advocating for a ban on fossil fuel ads on the local level</u>

    a.   Direct Impact

Advocating for a ban on fossil fuel ads on the local level has a high direct impact. As it is mentioned above in the description of the strategy, advocating for a ban of fossil fuel ads has a high success rate at the local level, resulting in fossil companies not being able to put up ads anymore. Moreover, the successful direct effects of advocating against fossil fuel ads at local levels also builds momentum that can lead to more success in different local actions. This is due to a higher tendency of municipalities sharing their experience and knowledge in friendlier and less formal climate policy negotiations. Climate policies are proven to spread more succesfully when the negotiation environment changes from adversarial formal negotiations to these friendlier environments where the policies are favorably framed (Rietig, 2014). This strategy has already been successful in 6 Dutch cities (Reclame Fossielvrij, 2021, December 24).

Nonetheless, an essential factor that plays an important role regarding the success of this strategy is how progessive and invested in environmental sustainability a certain government or political institution is. Part of their strategy was to target municipalities with a more progressive government, as the chances of success increase significantly (Charlotte Braat, Reclame Fossielvrij, personal communications, October 19, 2022).

    b.   Indirect Impact

Advocating for a ban on fossil fuel ads on the local level has a medium direct impact. Advocating at a local scale, although it has a higher direct impact, it usually has a lower indirect impact. That is because since it happens at such a small scale, it hardly gets such a strong media coverage. However, Reclame Fossilvrij uses its online platforms to try to amplify these messages, which is successful in increasing the indirect impact especially at national scale in the Netherlands. Moreover, the amount of people affected by this strategy at a local level is limited only to the population of the specific municipality.

    c.   Time

Advocating for a ban on fossil fuel ads on the local level requires some time . At the local level, this strategy requires months of time investment. It requires the time to carry out collective action, which includes writing letters to representatives and putting out campaigns against fossil fuel ads. However, because of the momentum created by the success of one particular case, the time investment requires for the following case at a local level can easily be distinguished.

    d.   Financial resources

Advocating for a ban on fossil fuel ads on the local level requires little financial resources. The money required to carry out this strategy are not very high amounts, as it is mostly activist action done by groups of people that are driven and passionate about this cause and do not often require compensation.

    e.   Expertise/skills

Advocating for a ban on fossil fuel ads on the local level requires a lot of expertise and skills. No matter at which scale the advocating against fossil fuel advertisement is taking place, professionals

are required to pursue this strategy effectively and legitimately. Well-informed personnel with some background in sustainable governance and policy making are essential, as well as professional health workers that are knowledgeable on the negative health effects of fossil fuels.

<u>Advocating for a ban on fossil fuel ads on the national and global level</u>

    a.   Direct impact

Advocating for a ban on fossil fuel ads on the national and the global level has a medium direct impact, as it is always harder to push for change at a bigger territorial scale. Significant research has been conducted on the difficulties and challenges that come with implementing environmental initiatives at a global scale. This is due, among other factors, to the very wide range of actors involved with diverse goals and varied influence over decision-making (Sanders et al., 2017). Nonetheless, if the strategy were to be successful, and a ban on fossil fuel ads was implemented at a national or even global scale, the direct impact would be then very high.

    b.   Indirect Impact

Advocating for a ban of fossil fuel ads on the national and the global level has a high indirect impact. This is due to the higher media coverage that larger scale action usually gets, as it involves a larger population. Moreover, if it were successful, the consequences would be much greater as its effects would involve a greater population.

    c.   Time

Advocating for a ban of fossil fuel ads on the national and the global level requires a lot of time. It has been years since different activism groups have been advocating for a fossil fuel advertisement ban, and the success rate is still very low at larger scales.

    d.   Financial resources

Advocating for a ban of fossil fuel ads on the national and the global level requires some financial resources. The same circumstances apply regarding activists not requiring compensation, but financial resources are very useful to push an agenda when it comes to national and global scale. Money allows access to platforms and places that can help the cause.

    e.   Expertise/Skills

Advocating for a ban of fossil fuel ads on the national and the global level requires a lot of expertise and skills. As mentioned above, the expertise needed for this strategy is high at any scale.

<u>Lawsuits against misleading advertising</u>

    a.   Direct impact

Lawsuits against misleading advertising have a medium direct impact, as an anti-greenwashing lawsuit is directly fighting greenwashing, though it depends on whether the case is won. The success rate for this depends on the case though the success rate could increase when you accuse a company for greenwashing on the same basis as a previous case (an example of this is of CO2 neutral products as mentioned in Annex B). Companies are called out for greenwashing and will be checked for

compliance (Stichting Reclame Code, n.d. -b). There can be reputational damage and sometimes a fine. Though it addresses individual cases and only addresses one advertisement at a time, it can be a good signaling to other oil and gas companies and additionally it can inspire other anti-greenwashing cases (Annex B)

b. Indirect impact

Lawsuits against misleading advertising have a high indirect impact as a case made about greenwashing - whether won or not - can help to raise awareness to greenwashing. A case can become known and get media attention, which could lead to a change in public opinion about the company, reputation damage of the company and to public awareness (Dixon et al., 2016).

c. Time

Lawsuits against misleading advertising require a lot of time. While for cases through advertising authorities can sometimes be handled quite quickly, it can take years for a lawsuit to take place, making it a higher time investment.

d. Financial Resources

Lawsuits against misleading advertising require a lot of financial resources. Though the handling procedure for an advertising accusation is free in the Netherlands (Stichting Reclame Code, n.d. -c), this could be different in other countries. Additionally it costs money to make an advertising accusation as an organization or entrepreneur and costs can become increasingly higher when the company at hand makes a defense and an additional appeal needs to be made (Stichting Reclame Code, n.d. -e).

e. Expertise/Skills

Lawsuits against misleading advertising require a lot of expertise. Though advertising authorities can provide a framework with rules and regulations that can help to build a case (Stichting Reclame Code n.d.-a), if an appeal is made, more legal expertise is needed.

Calling out organizers of events/institutions sponsored by fossil money

a. Direct Impact

Calling out organizers of events/institutions sponsored by fossil money has a medium direct impact. The direct impact capacity of this strategy differs from case to case, and the success rate of the strategy. It relies on whether the event or institution that is being called out for being sponsored by fossil money actually stops taking this money or bans from their program whichever activity is being sponsored by fossil money. A factor that plays an important role regarding the success of this strategy is whether the institution or event being called out presents itself as environmentally friendly or ties itself with a sustainability related message. In this case, these events/institutions tend to take action quicker because there is a higher chance that people attending or involved will stop supporting the event/institution when made aware of the fossil fuel related sponsorship.

b. Indirect Impact

Calling out organizers of events/institutions sponsored by fossil money has a high indirect impact. By calling out events/institutions on the fact that they are being sponsored by fossil money, most people involved in these activities become aware of the situation. If these events were never called

out, many participants that aren't as informed or involved in the cause would probably remain unaware of the situation. Even if the strategy is not successful in convincing the event to refuse the fossil fuel sponsorship, I will still have a high indirect impact.

c. Time

Calling out organizers of events/institutions sponsored by fossil money requires little time. It only requires a group of activists or an individual to check where these events are getting their sponsorship from, and taking the time to put out a public statement and/or write a letter against the sponsorship.

d. Financial Resources

Calling out organizers of events/institutions sponsored by fossil money requires little financial resources. Activists carry out this strategy voluntarily, and doing so does not require any financial resources and it consists in demonstrating, sending a letter or posting on social media platforms.

e. Expertise/Skills

Calling out organizers of events/institutions sponsored by fossil money requires little expertise and skills. There is not a strong need for professional or specialized personnel, only people invested in the cause that are aware of these sponsorships. Only a platform available to the general public is required to put out the message that is being sent, or the refusal of attendance from a relevant figure until the sponsorship is dropped.

<u>Framing greenwashing as investor fraud</u>

a. Direct impact

Framing greenwashing as investor fraud has a medium direct impact. The strategy is surrounded by a lot of uncertainty, mostly because of its novelty in the fight against greenwashing. So far, only a few attempts have been made to use this strategy which makes it unclear how successful it can be.

If a lawsuit against a company for investor fraud based on greenwashing was successful and the court decided that greenwashing is indeed investor fraud, this strategy could have a direct impact on the company in question as it would have to implement the demands made by the court. Additionally, the conviction of a company could set a deterrent example for other companies and stop them from greenwashing. However, it remains unclear if this success would impact the company long-term and lead to more accuracy and less greenwashing regarding their environmental reporting, or if the impact remains short-term and is solely related to one lawsuit, as afterwards the company could just continue with greenwashing.

The success rate of this strategy is difficult to assess because it has been used very rarely. It is therefore necessary to wait for the outcome of the lawsuit Healey vs. ExxonMobil.

b. Indirect impact

Framing greenwashing as investor fraud has a high indirect impact. Even though the direct impact of this strategy might be limited, one could argue that it is not about winning a case or not, but rather about the indirect effects it has on public awareness as well as investors' awareness. The court case Healey vs. ExxonMobil has attracted much attention from the media (e.g. CBS News, 2022; McGreal,

2022; Raymond, 2022), meaning that even though ExxonMobil might not be convicted for investor fraud, the company was already publicly exposed for their wrongdoings. Not only might this have led to a change in the public's perception of the company and its greenwashing, but investors may also be influenced by the public attention to such a case and question their investments.

c. Time

Framing greenwashing as investor fraud requires a lot of time. Filing a lawsuit against a company is very time-consuming. The case of Healey vs. ExxonMobil was filed in 2019 and is expected to be decided in 2024, indicating a time requirement of five years. However, it might become less time-consuming once one lawsuit is won because it can then serve as a basis for further lawsuits.

d. Financial resources

Framing greenwashing as investor fraud requires a lot of financial resources as litigation is very costly. Expenses that have to be taken typically include the court fee, with court fees in the Netherlands varying between 8000 and 20000 Euros, lawyers' fees, and other costs that come up during the trial (Netherlands Commercial Court, n.d.).

e. Expertise/skills

Framing greenwashing as investor fraud requires a lot of expertise. Lawyers and legal expertise are required to implement this strategy.

Using pressure from investors to increase environmental disclosure

a. Direct impact

Using pressure from investors to increase environmental disclosure has a medium direct impact. Investors are powerful and influential stakeholders when it comes to corporate decisions. Convincing investors to put pressure on companies and demand transparency could subsequently have a major direct impact on companies and lead to more transparency on companies' climate-related risks and environmental impacts (Cotter & Najah, 2012; Flammer et al., 2021), suggesting that the impact of this strategy is high. However, increased transparency does not necessarily lead to less greenwashing, as shown for example in the case of Healey vs. ExxonMobil. Companies could become increasingly transparent but deliberately publish false information, thereby misleading investors and the public. Nevertheless, increased transparency would make it easier to detect greenwashing and call them out for it. Additionally, it is unclear how successful investors can be persuaded to use their corporate influence to push for greater disclosure. While many investors are calling for greater climate disclosure, as discussed in section 4.2, it remains unclear to what extent this trend applies to investors in fossil fuel companies.

Furthermore, it can be expected that the magnitude of the effect of using this strategy is limited as companies and their investors have to be targeted one by one. Nevertheless, a ripple effect could occur as more and more investors demand transparency on a company's climate risks.

b. Indirect impact

Using pressure from investors to increase environmental disclosure has a high indirect impact. In the long run, this strategy could lead to investors becoming more aware of the implications of climate risks for their investments, taking a more critical look at companies and their environmental impacts, and thus making greener investment decisions in the future. This indirect effect could influence greenwashing to the extent that companies would have to adapt to this change and make their companies more environmentally friendly to remain competitive in the market.

    c. Time

Using pressure from investors to increase environmental disclosure requires some time. It is difficult to estimate how time-consuming this strategy is. Since each company has several influential shareholders, it could take a long time to convince the majority to demand more transparency from companies. Furthermore, the successful implementation of this strategy could be an iterative process of targeting one company at a time, which increases the time required if success is to be achieved on a larger scale.

    d. Financial resources

Using pressure from investors to increase environmental disclosure requires little financial resources. Depending on how exactly the strategy is used, this strategy can already be implemented inexpensively.

    e. Expertise/skills

Using pressure from investors to increase environmental disclosure requires some expertise. Special knowledge on disclosure frameworks and ESG disclosure policies might be an advantage.

<u>Becoming a shareholder</u>

    a. Direct impact

Becoming a shareholder has a medium direct impact. As a shareholder, you have a very direct influence on the company as you can actively participate in shareholder meetings, submit resolutions and thus exert pressure on the company. If a filed resolution was to be adopted by the company, the direct impact on the company would be high as they would have to take actions as proposed by the resolution, e.g. stronger climate action to reach net zero in 2050. The success rate of your actions, however, remains low as it is unlikely that filed resolutions getting adopted as can be seen in the case of Follow This – only 20 % of Shell's shareholders voted in favor of their resolution (Shell, 2022 May 24) which is not enough to have it adopted by Shell.

    b. Indirect impact

Becoming a shareholder has a medium indirect impact. Lobbying at shareholder meetings could indirectly influence other shareholders and raise their awareness of the importance of considering climate risks in future investment outcomes. However, the influence does not seem to be sufficient to convince them to vote in favor of more demanding climate resolutions, as in the case of Follow This' climate resolution for Shell, only 20 % of Shell's shareholders voted in favor of their resolution.

c. Time

Becoming a shareholder requires a lot of time. Coming up with the required amount of shares can be expected to be time consuming and take years, depending on how quickly people can be convinced to buy shares on your behalf. The organization Follow This managed to come up with shares worth five million Euros in one year (Follow this, n.d. -c), provided a full-time effort was made.

  d. Financial resources

Becoming a shareholder requires a lot of money. The money required to become a shareholder that is able to file a resolution differs per company. For Shell, shares worth at least five million euros were required in 2015 (Follow this, n.d. -c). To reduce the costs, you could encourage people to buy shares on your behalf.

  e. Expertise/Skills

Becoming a shareholder requires some expertise. No special expertise is needed to become a shareholder. To file resolutions, expertise on environmental and climate policy is an advantage.

<u>Advocating for a legislative change towards mandatory disclosure requirements</u>

  a. Direct impact

Advocating for a legislative change towards mandatory disclosure requirements has a medium direct impact. The direct impact resulting from a change in the law is very high, as companies would immediately have to implement the requirements of the law which would force them to disclose the risks climate change poses to their business as well as the impact of the company on the climate. Additionally, mandatory disclosure requirements have proven to be highly impactful in France: Compared to other investors in Europe, French investors have limited their investments in fossil fuel companies since the legislation has passed, indicating that voluntary approaches to climate risk disclosure might not be as effective as mandatory requirements (Mésonnier & Nguyen, 2020). This suggests that mandatory disclosure requirements might lead to a more accurate representation of the risks climate change poses on companies and therefore could help to reduce their greenwashing. However, it is not a given that disclosure leads to less greenwashing as businesses could still publish false information. In addition, it can be assumed that such a change in legislation is difficult to achieve as it has only happened in France so far, indicating a low success rate.

  b. Indirect impact

Advocating for a legislative change towards mandatory disclosure requirements has a medium indirect impact. In the last decades, research has increasingly focused on how policies influence the public opinion, and studies suggest that public opinion can change as a result of the introduction of new laws (Jacobs & Mettler, 2018; Rayens et al., 2007). From these findings, it can be inferred that public opinion will be influenced by a legislative change towards mandatory disclosure requirements as such a law would signal that it is increasingly important for companies to disclose the risks climate

change poses to their business in order to prevent greenwashing and misleading the public and investors. However, advocating alone has little impact on public awareness, as lobbying on legislative changes to disclosure requirements is rarely picked up and reported by the media, probably because of the complexity of the topic.

c. Time

Advocating for a legislative change towards mandatory disclosure requirements requires a lot of time. Passing a new law can take years, depending on the country and government, from setting the agenda, to negotiating and adopting the law.

d. Financial resources

Advocating for a legislative change towards mandatory disclosure requirements requires little financial resources. Lobbying expenditure varies strongly, depending on the chosen tools and chosen implementation of the strategy, and are therefore hard to estimate. In general, no fixed amount of money is needed to implement the strategy.

e. Expertise/Skills

Advocating for a legislative change towards mandatory disclosure requirements requires a lot of expertise and skills. Several instruments have to be used to push through such a change in the law. One of the most important skills needed, however, are relations to political actors in the country where a new law is to be passed (Ridge et al., 2016).

Advertising authorities

a. Direct impact

Advertising authorities have a medium direct impact, as this strategy directly fights greenwashing though it does so by fighting for one advertisement at a time, making it a medium direct impact strategy. If a just claim is made against a greenwashing advertisement the advertisement will need to be adjusted or removed, in accordance with the rules and regulations of the advertising authority in a given country. Making a case based on the rules and regulations set by advertising authorities has seen success in the past. As an example, Shell was called out for greenwashing by the RCC 10 times in a period of a year and 3 months, for which in 7 instances they were found guilty of making false or ungrounded green claims, for which claims needed to be adjusted, suggesting a high success (Adformatie, 2022, June 24).

b. Indirect impact

Advertising authorities have a medium indirect impact, as, depending on whether a case gets media attention, can create public awareness and reputational damage to a company. However, as it is about a single advertisement, depending on how big the case is and how far it gets into court, medium to low media attention and public awareness can be expected.

c. Time

Advertising authorities require some time. While finding an advertisement and matching it with an advertising authority rule can be done quickly, the handling of the case by an advertising authority can take months. As an example the Reclame Code Committee aims to reply to a complaint within two weeks (Stichting Reclame Code, n.d. -c), for which after that - if a complaint is found reasonable for a case - the accused party has two weeks to respond (Stichting Reclame Code, n.d. -d). Nevertheless, there are possibilities for doing it quicker when the advertising authority considers it a case that needs to be handled quicker (than two weeks are taken) or when a similar accusation was already made and the verdict can apply to newly submitted accusation (Stichting Reclame Code, n.d. -e).

d. Financial resources

Advertising authorities require some financial resources, as the legal process can be quite costly. For example, while as an individual, making a claim and the claim handling procedure for an advertisement at the Reclame Code Commissie is free, there are costs involved to make a claim as an organization and when you want to go against the ruling by the advertising authority. These costs range between 15 (when a case is not handled, and one goes against it) and 1000 euro's (to make a claim as an organization) (Stichting Reclame Code, n.d. -e).

e. Expertise/Skills

Advertising authorities require some expertise, as some legal knowledge is needed, though the advertisement authorities provide a framework with rules and regulations that can help to build a case (Stichting Reclame Code n.d. -a). Additionally, past cases can be used to build a new case (Annex B).

Subvertising

a. Direct impact

Subvertising has a low direct impact, as it does not directly fight greenwashing, but rather influences public opinion and brand reputation.

b. Indirect impact

Subvertising has a high indirect impact, as it is a subtle way to change public opinion and bring damage to a brand reputation**.** With that, the rise of subvertising as an activist's tool means that for brand owners there now is a risk that their paid-for advertising campaigns are taken and turned into a message against them, leading to both wasted advertising money but also reputational damage (Dixon, Martin & Nau, 2016; Smith-Anthony & Groom, 2015). The potential of social media adds another layer that poses a threat to brand owners: where a subvertisement on the street can often easily be removed, images of the ad on a familiar bus stop in a city center can be shared over and over, increasing the public awareness and brand reputation effects (Smith-Anthony & Groom, 2015).

c. Time

Subvertising requires little time, as the time investment mainly concerns the creative process of making a subvertisement. Subvertisements are often, in order not to get caught, placed in the night and if done undisturbed, it can often be done quickly (Lekakis, 2017). Therefore the time investment for this strategy is relatively low and mainly concerns the creative process and the actual changing or replacing of an advertisement.

d. Financial resources

Subvertising requires some financial resources, as due to the legal aspect of this strategy, implementers of this strategy might face fines (Smith-Anthony & Groom, 2015). Additionally, there could be costs involved in the creative process of making a subvertisement (paper, printing, editing software, etc.).

e. Expertise/Skills

Subvertising requires some expertise and skills, as it might require knowledge on local regulation on advertising space and use of public property, as it is a strategy that is not always legal to do, and the municipality or police might interfere (Smith-Anthony & Groom, 2015). Additionally, it requires some creative skills.