AI4Debunk

D12.4 Desk Review Report on Misinformation/ Disinformation on Climate Change

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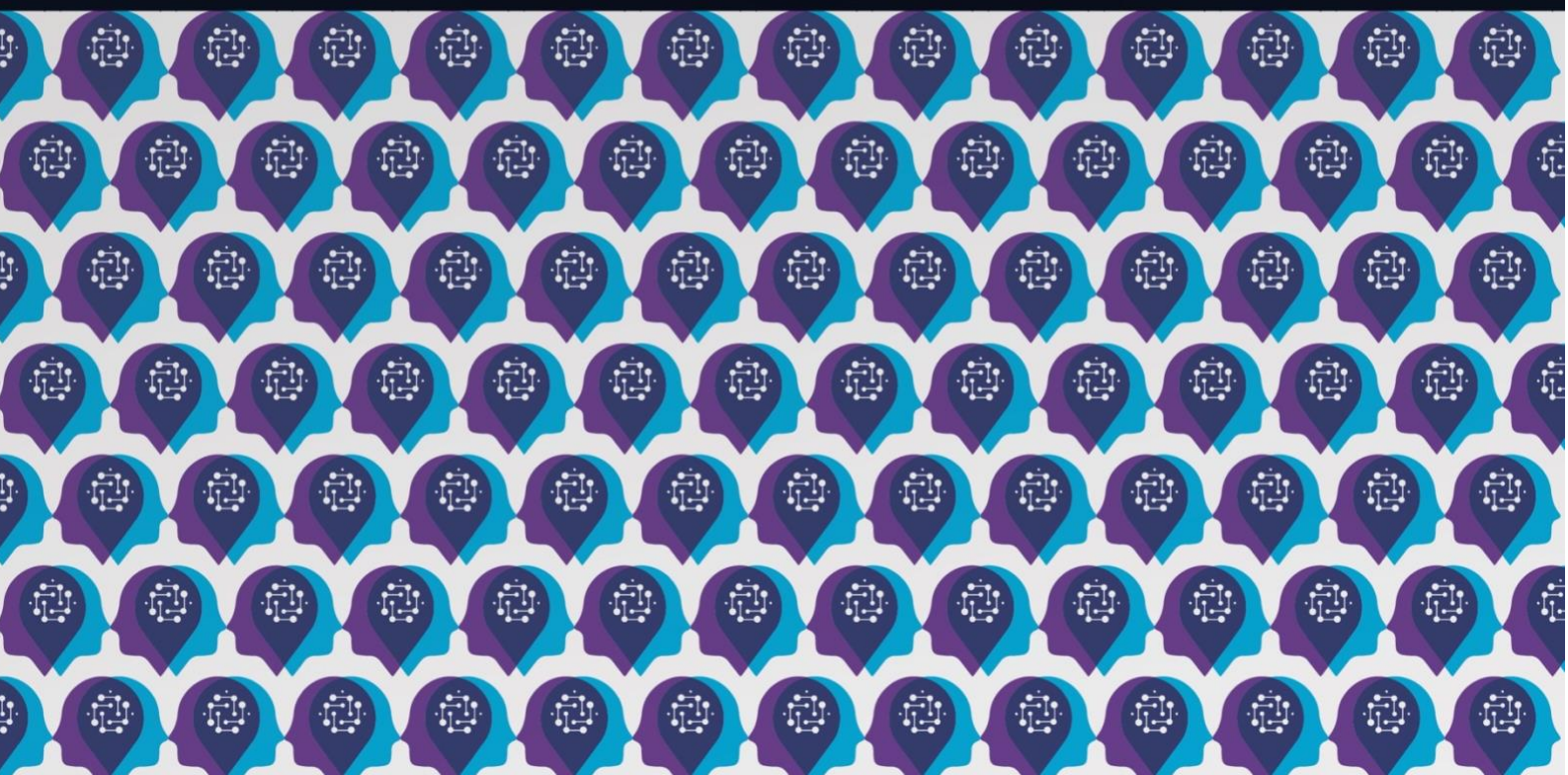

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D12.4 DESK REVIEW REPORT

Desk Review Report on Misinformation/ Disinformation on Climate Change

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STATEMENT ON MAINSTREAMING GENDER

The AI4Debunk consortium is committed to including gender and intersectionality as a transversal aspect in the project's activities. In line with EU guidelines and objectives, all partners – including the authors of this deliverable – recognise the importance of advancing gender analysis and sex-disaggregated data collection in the development of scientific research. Therefore, we commit to paying particular attention to including, monitoring, and periodically evaluating the participation of different genders in all activities developed within the project, including workshops, webinars and events but also surveys, interviews and research, in general. While applying a non-binary approach to data collection and promoting the participation of all genders in the activities, the partners will periodically reflect and inform about the limitations of their approach. Through an iterative learning process, they commit to plan and implement strategies that maximise the inclusion of more and more intersectional perspectives in their activities.

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DISCLAIMER

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ABBREVIATIONS

WP	Work Package
EC	European Commission
CAAD	Climate Action Against Disinformation
ESA	European Space Agency
NOAA	National Oceanic and Atmospheric Administration
CTT	Conservative Think-Tank
NGFS	Network for Greening the Financial System
EEI	Edison Electric Institute
EPRI	Electric Power Research Institute
GCC	Global Climate Coalition
ICE	Information Council on the Environment
GES	Greening Earth Society
FCA	Financial Conduct Authority
WEF	World Economic Forum

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EXECUTIVE SUMMARY

Misinformation and disinformation about climate change have become major barriers in addressing the global climate crisis. As the need for climate action grows more urgent, misleading narratives have proliferated, spreading mainly through social media and gaining amplification from vested interests like the fossil fuel industry.

Drawing on multiple desk reviews, including Climate Action Against Disinformation (CAAD), Conscious Advertising Network, and other key sources, this report examines these disinformation tactics. It shows how they weaken public understanding, delay policy implementation, and damage trust in climate science. Through analysis of key narratives and concrete examples, the report demonstrates why collective action is essential to combat climate misinformation and support evidence-based climate policies.

Warning: This report is a desk review of current literature to support further research. It synthesizes existing articles, reports, and media coverage to inform future analysis. This is not an academic paper. Its purpose is to summarize existing literature and reports to aid the AI4DEBUNK WP12 research teams in their upcoming research.

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1 INTRODUCTION

Misinformation and disinformation around climate change have become significant obstacles in the fight against the global climate crisis. As climate action becomes more urgent, a variety of misleading narratives have emerged, primarily spread through social media and amplified by vested interests such as the fossil fuel industry. This report draws on several desk reviews, Climate Action Against Disinformation (CAAD), Conscious Advertising Network, and other prominent sources, to provide an overview of these disinformation tactics, highlighting how they undermine public understanding, stall policy implementation, and erode trust in climate science. By exploring key narratives and their specific examples, this report emphasizes the need for collective action to combat climate misinformation and foster informed climate policies.

Warning: This report is a desk review of current literature to support further research. This relies on the summary of current articles, reports and media outlets in order to support future analysis. This is not an academic paper. It's aim is to provide an overview of existing literature and reports to support further research and to help the AI4DEBUNK WP12 research teams in their upcoming research.

Overview

The report identifies several major recurring disinformation narratives that aim to delay meaningful climate action:

1. **Denial of Climate Change or Downplaying Human Impact**: This narrative involves denying the existence of climate change or downplaying the role of human activities in causing it. For instance, false claims often argue that CO2 has minimal effect on global warming or that rising temperatures are purely due to natural variations. This type of misinformation was found across various social media platforms, often using manipulated graphs and misleading scientific quotes to create confusion. These narratives are not only spread through fringe social media groups but are also promoted by influential voices who aim to maintain the status quo and obstruct climate-related policy changes.

2. **Media Accused of Climate Alarmism**: This narrative accuses mainstream media and environmental organizations of exaggerated fearmongering about the impacts of climate change, supposedly to create unnecessary public panic. One case noted in the report involved viral articles that criticized prominent European news outlets for their coverage of Arctic ice melt, falsely claiming that the media exaggerated the rate of melting. Such claims seek to undermine the credibility of legitimate scientific reporting, despite substantial evidence from trusted institutions like NASA and the European Space Agency (ESA). By creating a perception that the media is unreliable, this disinformation attempts to reduce public urgency to act on climate issues.

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3. **Attacks on Renewable Energy and Recycling**: Misinformation campaigns frequently target renewable energy technologies and recycling, depicting them as inefficient or economically burdensome. A particularly viral claim suggested that wind and solar power are unreliable and incapable of replacing fossil fuels, framing renewables as too costly and impractical. These disinformation efforts often rely on cherry-picked data that exaggerates the costs of renewables while ignoring long-term savings and environmental benefits. Additionally, recycling was portrayed as an ineffective environmental solution, with false claims that it generates more waste than it saves, aimed at diminishing public confidence in sustainable practices. These narratives are often supported by vested fossil fuel interests to maintain dependency on traditional energy sources.

4. **Portrayal of Climate Activism as Hypocritical**: Disinformation that frames climate activists as hypocritical often focuses on the personal behaviors of activists, such as their travel habits, to undermine their credibility. For example, posts circulated online accusing prominent climate activists of having excessive carbon footprints, ignoring the systemic changes they are advocating for. This narrative aims to divert attention from broader policy changes and to erode public trust in the climate movement. By shifting the focus to perceived personal inconsistencies, the intent is to weaken support for the movement's larger goals of societal change and environmental justice.

5. **Impact on Public Perception**: The report from CAAD and Conscious Advertising Network highlights that misinformation campaigns contribute significantly to public misunderstandings and weaken the mandate for climate action. These campaigns often exploit existing societal tensions, such as economic concerns and distrust in elites, to amplify their impact. For instance, attacks on renewable energy frequently emphasize perceived high costs, tapping into fears about rising energy prices and economic instability across Europe. These narratives effectively create barriers to consensus-building and mobilizing public pressure on governments to take effective action.

6. **Link to Broader Conspiracy Theories**: The report also addresses how climate misinformation has been linked to broader conspiracy theories, such as the "Great Reset." This conspiracy frames global climate initiatives as attempts by elites to impose authoritarian control, portraying climate action as part of a sinister agenda. These conspiracy theories have been amplified by right-wing media figures and have gained significant traction online, further complicating efforts to build public consensus on climate policies. The convergence of climate misinformation with broader political conspiracies creates an environment of mistrust that can paralyze meaningful climate action.

7. **Social Media and Misinformation**: Social media platforms play a significant role in amplifying climate misinformation. The report notes that platforms like Facebook, Twitter, and TikTok have been hotspots for spreading false climate narratives, with algorithms often prioritizing sensationalist content that garners more engagement. The lack of stringent content moderation allows misinformation to spread widely, further entrenching false beliefs about climate science and policy. The role of algorithms in favoring divisive content makes social media a powerful tool

for disseminating climate misinformation, which in turn undermines public efforts to foster collective climate action.

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2 METHODOLOGY

The methodology for this report involved a comprehensive desk review and analysis of existing literature, reports, and case studies on climate misinformation. The process was conducted in several phases. Initially, a systematic review of academic articles, reports, and publications related to climate misinformation was carried out. The focus was on identifying recurring narratives, misinformation tactics, and their impacts on public perception and policy. This phase included sources such as peer-reviewed journals and research reports from credible institutions, including CAAD.

Data collection followed, gathering relevant information from social media analysis reports, mainstream media content, and publicly available case studies. This data helped examine the role of social media platforms in amplifying misinformation and how traditional media outlets were targeted as propagators of climate alarmism. Content analysis was then used to classify the misinformation narratives identified, grouping them into themes like denial of climate change, attacks on renewable energy, media distrust, conspiracy theories, and economic fearmongering. Special attention was paid to understanding how these narratives evolved and targeted different aspects of climate science and policy.

In addition, specific case studies were included to illustrate how misinformation campaigns work in practice. These case studies examined viral memes that misrepresented scientific facts, misleading claims about renewable energy costs, and narratives around the "Great Reset" conspiracy theory. Expert insights were also sought from climate scientists, policy experts, and media scholars to add depth to the analysis, providing context to the strategies used in misinformation campaigns.

The final phase involved mapping the articles and reports collected to the thematic areas listed in the table of contents to ensure each theme was backed by relevant literature and evidence, maintaining a structured and cohesive report. Findings were synthesized into the sections presented in this report, highlighting the major disinformation themes and assessing their impact on public understanding and climate action.

Warning: This report is a desk review of current literature to support further research. This relies on the summary of current articles, reports and media outlets in order to support future analysis. This is not an academic paper. It's aim is to provide an overview of existing literature and reports to support further research and to help the AI4DEBUNK WP12 research teams in their upcoming research.

3 MAJOR RECURRING CLIMATE CHANGE DISINFORMATION NARRATIVES

Introduction

The spread of climate change misinformation in Europe is dominated by several recurring narratives that aim to undermine public trust in climate science and delay meaningful action. These narratives typically

involve denying or downplaying climate change, accusing the media of unjustified alarmism, discrediting renewable energy and recycling, and portraying climate activists as hypocritical. Each of these narratives targets different aspects of climate action to sow confusion, create division, and reduce the public's willingness to support environmental policies. This section delves into the key misinformation tactics identified, demonstrating how they collectively hinder progress on addressing the climate crisis.

3.1 *"DISINFORMATION ABOUT CLIMATE CHANGE – MAIN NARRATIVES IN JUNE AT THE EUROPEAN LEVEL,*

An article from the European fact-checker EDMO titled, **"Disinformation about Climate Change – Main Narratives in June at the European Level,"** was published in 2022 and gives an in-depth analysis of climate misinformation spread across Europe in June 2022.[1] The report identifies four major recurring disinformation narratives, and it emphasizes how these narratives aim to undermine climate science and delay meaningful policy action. Below is a comprehensive write-up, including specific examples of these disinformation tactics.

The key disinformation narratives identified in the report are:

1. Climate Change Denial or Downplaying Human Impact: Disinformation denies the existence of climate change or dismisses the role of human activities in causing it.
2. Media Accused of Unjustified Climate Alarmism: Claims that accuse mainstream media and environmental organizations of creating unnecessary panic about climate issues.
3. Attacks on Renewable Energy and Recycling: Negative narratives about renewable energy technologies and the recycling process, often framing them as either inefficient or costly.
4. Portrayal of Climate Activism as Hypocritical: Efforts to discredit the climate movement by portraying activists as hypocritical or suggesting that climate actions are merely elitist endeavors that harm ordinary people.

Key Examples

1. Denial of Climate Change or Its Human Origin

This narrative primarily denies climate change altogether or downplays the role of human activity. In June, several social media posts circulated claims that carbon dioxide (CO2) is not responsible for global warming. The posts often included manipulated graphs and misleading scientific quotes, suggesting that natural variability was solely responsible for the observed climate changes. An example highlighted in the

[1] https://edmo.eu/publications/disinformation-about-climate-change-main-narratives-in-june-at-the-european-level/

report was the re-emergence of an old, debunked myth that CO2 levels have little to no impact on global warming, falsely suggesting that plants would benefit more from higher CO2 concentrations, ignoring the detrimental effects of such increases on ecosystems and global temperatures.

2. Accusations of Climate Alarmism by the Media

Another prevalent narrative was the accusation that the media and environmental organizations were fearmongering about the impacts of climate change. One case noted in the report involved viral articles that criticized prominent European news outlets for their coverage of Arctic ice melt. The claim was that these outlets exaggerated the rates of melting, intending to create unwarranted panic among the public. In reality, scientific data shows significant declines in Arctic Sea ice, and the portrayal by the media reflected legitimate concerns, supported by rigorous research from institutions like NASA and the ESA.

3. Attacks on Renewable Energy and Recycling

The EDMO 2022 report detailed examples where renewable energy and recycling efforts were targeted. A particularly viral claim suggested that wind and solar power are fundamentally unreliable and incapable of replacing fossil fuels, framing renewables as too costly and impractical. The disinformation often relied on cherry-picked data that exaggerated the costs while ignoring the long-term savings and environmental benefits. Additionally, recycling was portrayed as an ineffective environmental solution, with false claims that it generates more waste than it saves. These narratives sought to undermine public confidence in renewable energy technologies and sustainable practices.

Climate Activism as Hypocritical

The portrayal of climate activism as hypocritical has been a long-standing tactic used by climate denial groups. During June, disinformation campaigns targeted prominent climate activists, suggesting that their lifestyles were incompatible with their advocacy. For instance, posts circulated online accusing well-known climate activists of excessive carbon footprints due to their travel habits. Such claims often ignore the broader systemic changes these activists are calling for, and the focus on individual behavior serves to divert attention from necessary structural reforms to combat climate change. The intention behind these narratives is to erode public trust in the climate movement by presenting activists as insincere.

Analysis and Impact

The report from EDMO highlights that these misinformation campaigns are part of a broader effort to stall climate policy implementation by sowing confusion and distrust among the public. By attacking the credibility of climate science, discrediting renewable energy, and accusing climate advocates of hypocrisy, these narratives aim to create barriers to consensus on climate action. One significant observation from

the report was how these narratives leveraged existing societal tensions, such as economic concerns or distrust in elites, to amplify their impact. For example, the attacks on renewable energy often emphasized its perceived high costs, tapping into people's fears about energy prices and economic stability, particularly in the context of rising energy bills across Europe.

The systematic spread of disinformation about climate change in Europe illustrates the challenges faced in mobilizing public support for climate action. The four narratives identified—denial of climate change, accusations of media alarmism, attacks on renewable energy and recycling, and the portrayal of climate activists as hypocritical—are all designed to undermine the urgency and legitimacy of the climate crisis. Addressing these narratives requires greater public education, transparency in communication, and proactive measures by social media platforms to identify and mitigate the spread of false information.

4 THE IMPACTS OF CLIMATE DISINFORMATION ON PUBLIC PERCEPTION

Introduction

Climate disinformation has increasingly shaped public views on climate change, hindering support for necessary climate policies. This section delves into a report by the CAAD published in 2022 (CAAD 2022). The report titled '**The impacts of Climate Action on Public Perception'** highlights the widespread influence of disinformation campaigns across several countries. It examines how these narratives have skewed public understanding, weakened policy mandates, and reinforced false beliefs about climate change, fossil fuels, and renewable energy.

4.1 *THE IMPACTS OF CLIMATE DISINFORMATION ON PUBLIC PERCEPTION REPORT*

The above mentioned CAAD 2022 Report provides a comprehensive analysis of the prevalence and impact of climate disinformation across six countries: Australia, Brazil, Germany, India, the UK, and the US.[2] It explores the growing issue of climate misinformation globally. It highlights how disinformation campaigns are affecting public understanding, weakening the mandate for climate action, and influencing government policies negatively. The key findings are presented and summarized below.

Key Findings

1. **Prevalence of Beliefs**: Misinformation is prevalent in various countries, with significant portions of populations believing inaccurate narratives about climate change, fossil fuels, and renewable energy. For instance, 55-85% of surveyed populations believe at least one piece of misinformation.

[2] https://caad.info/wp-content/uploads/2022/11/The-Impacts-of-Climate-Disinformation-on-Public-Perception.pdf

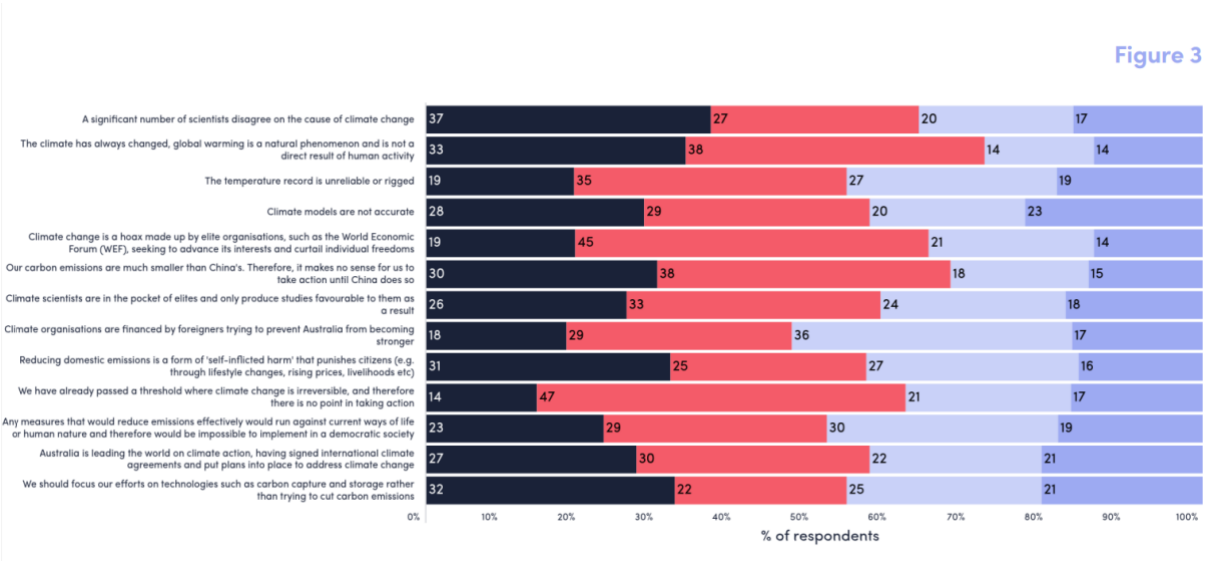

FIGURE 1: AUSTRALIA PARTICIPANTS[3]

2. **Fossil Fuel Narratives**: Misinformation about fossil fuels, such as the belief that natural gas is climate-friendly, is widespread. Such beliefs hinder the shift towards renewable energy.

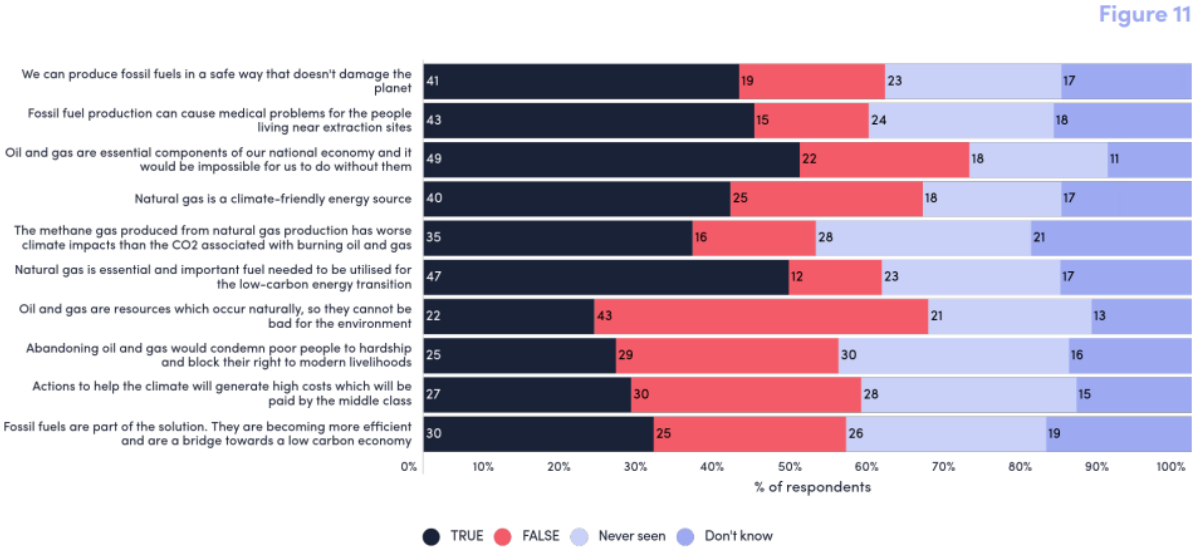

FIGURE 2: BRAZIL RESPONDENTS

[3] https://caad.info/wp-content/uploads/2022/11/The-Impacts-of-Climate-Disinformation-on-Public-Perception.pdf

3. **Media Influence**: The report finds a correlation between media consumption and misinformation. In many regions, regular consumers of news from particular outlets (e.g., Fox News in the US) are more likely to believe false climate narratives.

Figure 19

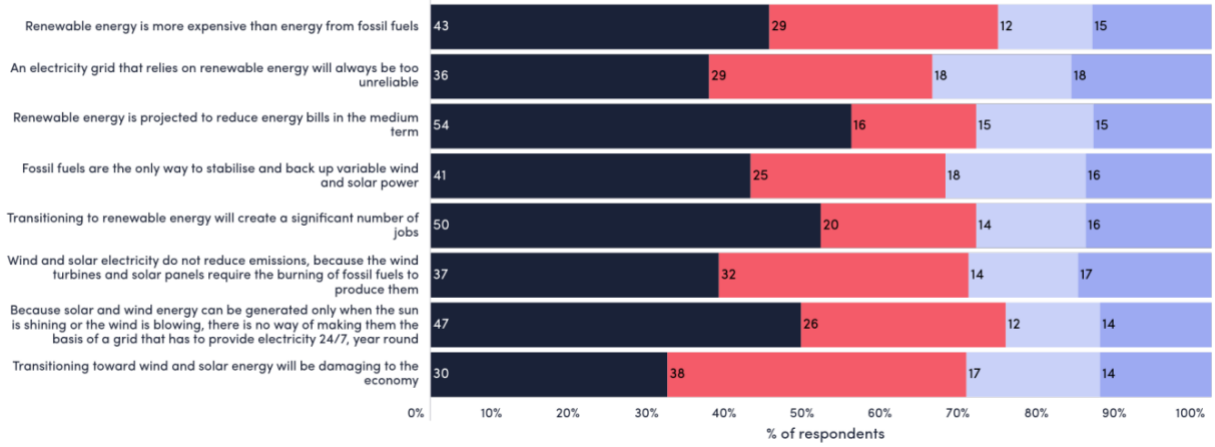

FIGURE 3: INDIA RESPONDENTS[4]

4. **Impact on Public Perception**: Disinformation is contributing to significant misunderstandings, such as the idea that climate change is a natural phenomenon unrelated to human activity, or that renewable energy is economically unfeasible. For example, 46% of respondents in the US do not believe that climate change is mainly caused by human activity.

[4] https://caad.info/wp-content/uploads/2022/11/The-Impacts-of-Climate-Disinformation-on-Public-Perception.pdf

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Figure 34

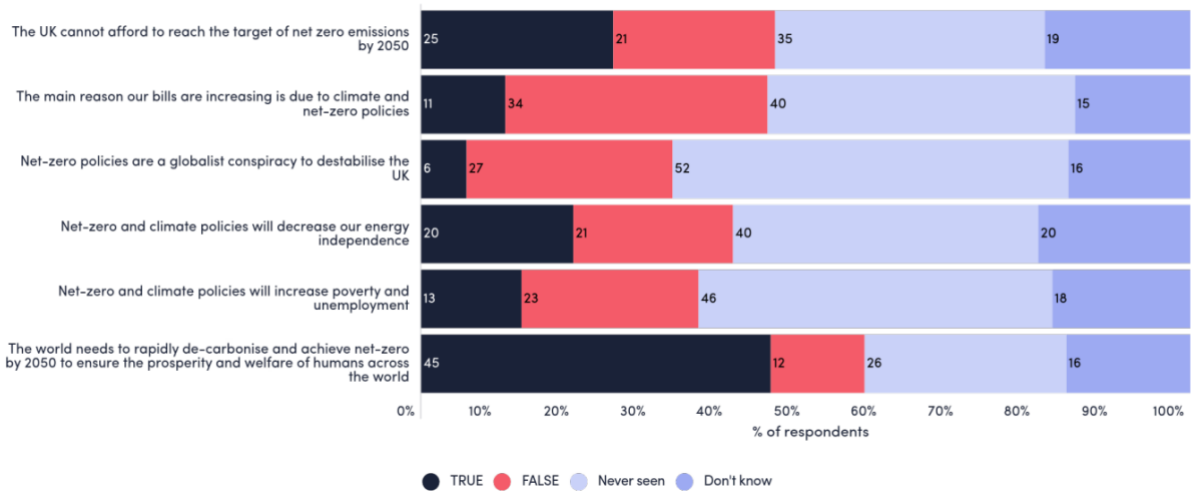

FIGURE 4: UK AND NET ZERO BELIEFS

Figure 49

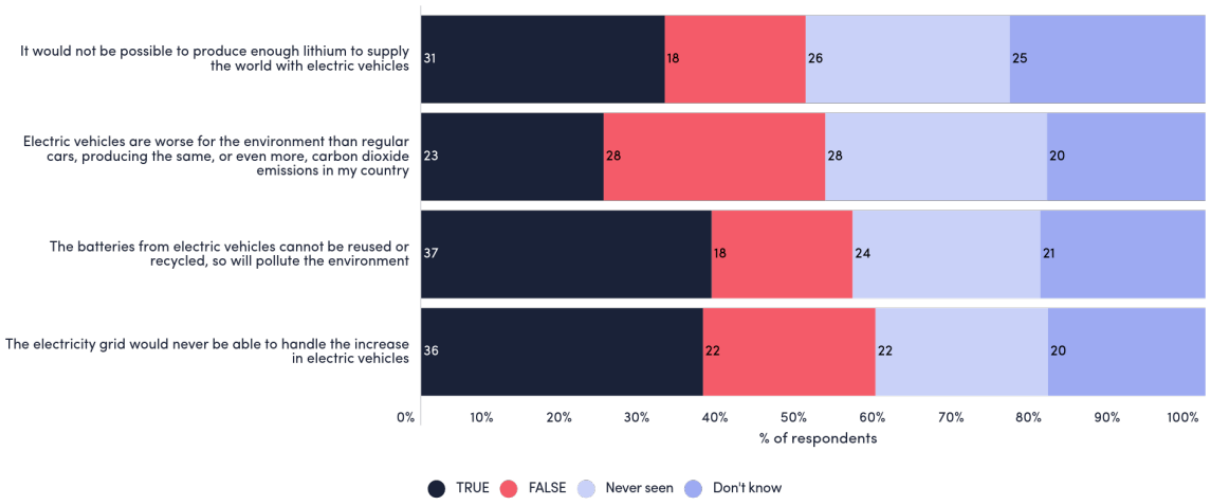

FIGURE 5: UNITED STATES AND ELECTRICITY CARS

Media Consumption and Misinformation

The report emphasizes that news consumption does not necessarily correlate with better climate understanding. In many cases, regular news consumers are more likely to believe false claims. This issue is further compounded by the influence of social media platforms, which play a significant role in spreading misleading information.

Challenges to Climate Action

Disinformation campaigns have evolved from outright denial to more subtle misinformation, such as exaggerating the costs of climate actions or promoting natural gas as a climate-friendly solution. Such narratives delay meaningful climate action and confuse public opinion on necessary policies like net-zero targets.

5 MISREPRESENTING HISTORICAL CLIMATE DATA TO DOWNPLAY CURRENT CHANGES

Introduction

Misinformation often involves distorting historical climate data to downplay the severity of current climate changes. This strategy relies on misrepresenting or selectively presenting climate records, suggesting that current trends are either natural or insignificant. Such narratives can erode public trust in scientific findings and hinder meaningful climate action by downplaying the urgency of the crisis. This is what shows the research by Venema et al. published in 2019 titled '**NASA did no create global warming by manipulating research'** (Venema et al. 2019)

5.1 *NASA DID NOT CREATE GLOBAL WARMING BY MANIPULATING DATA*[5]

[5] https://science.feedback.org/review/nasa-did-not-create-global-warming-by-manipulating-data-tony-heller-steven-goddard/

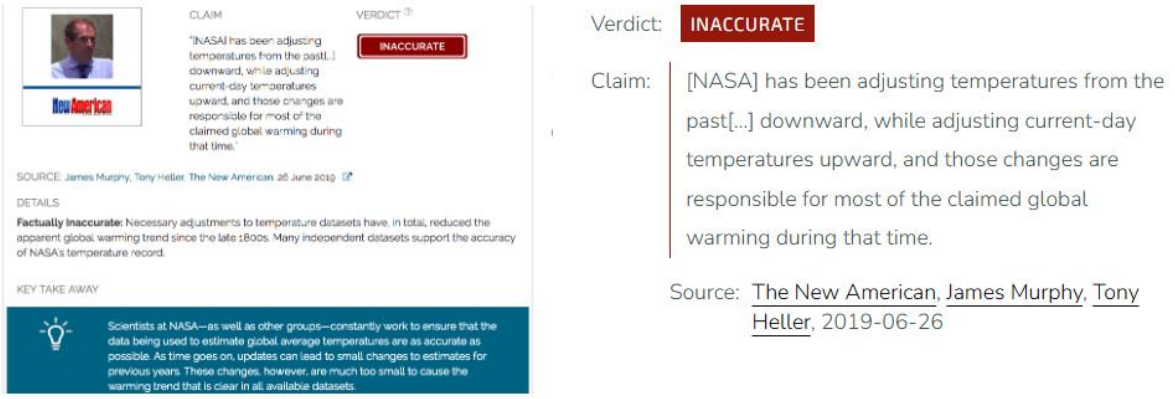

FIGURE 6: SCREENSHOOT FROM ARTICLE BY SCIENCE FEEDBACK

This article written by Science Feedback highlights the following disinformation: Claims have emerged suggesting that NASA manipulated historical temperature data to exaggerate evidence of global warming. These claims, often promoted by climate skeptics, have been widely shared on social media, contributing to public misunderstanding and distrust in scientific institutions.

For example, Tony Heller, who often posts under the pseudonym Steven Goddard, claims that NASA adjusted temperature data to make past temperatures appear cooler and recent temperatures warmer, thus exaggerating the appearance of warming trends. Similar claims have been echoed by other skeptics, who argue that these adjustments are part of a broader conspiracy to promote climate change alarmism.

However, research from NASA and other reputable organizations, like the National Oceanic and Atmospheric Administration (NOAA), refutes these misleading claims. NASA periodically updates temperature records to correct biases, account for changes in measurement methods, and ensure accuracy. Adjustments, such as those for the urban heat island effect, are crucial for maintaining consistency in climate data. These corrections are relatively minor and do not alter the clear, significant trend of global warming observed over the past century.

"Raw data show more global warming since 1880 than is reported by NOAA [or shown in other datasets]. This is because NOAA "adjusts" temperature data to fairly compare different measurement times, places, and technologies. The cooling effect of adjustments on global temperatures has been shown lots of times, such as with the graph below for 1880—2013 temperatures."[6]

[6] https://science.feedback.org/review/nasa-did-not-create-global-warming-by-manipulating-data-tony-heller-steven-goddard/

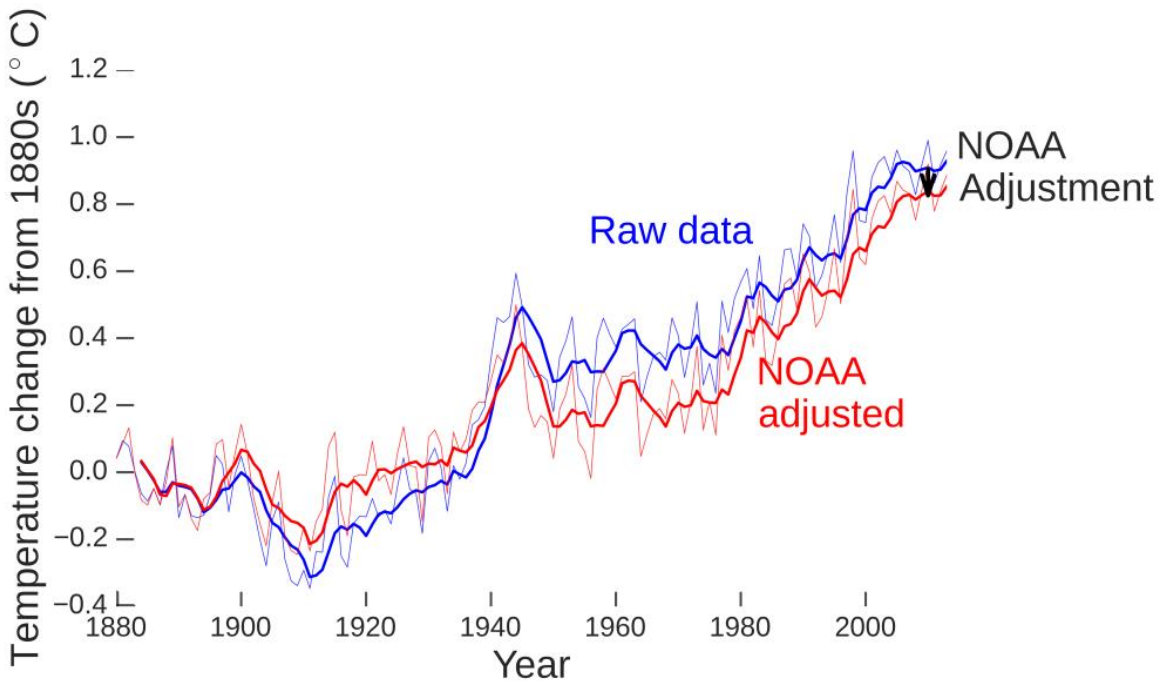

FIGURE 7: GRAPH OF GLOBAL TEMPERATURE CHANGE FROM 1880

A small group of conspiracy theorists flip this reality by "cherry picking", which means using a fraction of the data to prop up claims that are false globally. It's the sort of technique that would insist that this is a 100% blue cherry tree.[7]

Research emphasizes that data from numerous independent sources—such as satellite measurements, borehole temperature readings, and ocean heat content—consistently confirm global warming. The scientific consensus on climate change is based on a broad array of evidence, not just surface temperature records.

NASA and other agencies are transparent about their data handling, making all adjustments publicly accessible and documented. This openness allows independent researchers to verify findings, ensuring public trust. Claims that NASA manipulated data ignore the substantial body of evidence supporting global warming and misrepresent the processes of data quality control.

[7] https://science.feedback.org/review/nasa-did-not-create-global-warming-by-manipulating-data-tony-heller-steven-goddard/

In summary, the allegations of data manipulation are unfounded and overlook the rigorous efforts by the scientific community to ensure data accuracy and transparency. The evidence for global warming is overwhelming and consistent, allowing for informed responses to climate change challenges.

6 EXAGGERATION OF SCIENTIFIC UNCERTAINTY

Introduction

One common misinformation tactic involves exaggerating the uncertainties within climate science to create a false impression of significant scientific disagreement. By overstating the level of doubt, these narratives undermine public trust in climate research and mislead people into believing that climate action can be delayed until more "definitive" evidence is available. Further, these narratives become widely publicised. This approach exploits the inherent complexities of scientific research, ignoring the overwhelming consensus among experts about the seriousness of climate change.

6.1 *NEWSPAPERS ARE USING CLIMATE RESEARCHER'S FALSE CLAIMS ABOUT JOURNAL BIAS TO MISLEAD READERS*

The researcher Bob Ward at the London School of Economics studied with specific examples how research mistakes could be amplified by the Media to discredit true science (Ward 2023). An article in the journal *Nature in 2023* had sparked controversy following claims by Dr. Patrick Brown, the lead author, that he was pressured to focus on the role of climate change in wildfires to ensure publication.[8]

Dr. Brown's assertion that he was forced to alter his research has been explicitly rejected by Nature's Editor-in-Chief, who stated that his approach did not meet the journal's standards. Furthermore, the journal *Nature* has published other articles that emphasize non-climatic factors influencing wildfires, which contradicts the notion that the journal is biased towards a specific narrative. Despite this, Dr. Brown's claims have been widely circulated by media outlets opposed to climate action.

Dr. Patrick Brown's claims have been prominently featured by several media outlets known for their skepticism toward climate change narratives. Notably:

[8] https://www.lse.ac.uk/granthaminstitute/news/newspapers-are-using-climate-researchers-false-claims-about-journal-bias-to-mislead-readers/

- **The Daily Telegraph** published an article on September 7, 2023, with the headline "Climate change findings inflated 'so paper would be published'," suggesting that Dr. Brown admitted to overemphasizing global warming to align with journal preferences.
- **The Daily Mail** covered the story on September 8, 2023, under the headline "Scientist: I blamed US wildfires solely on global warming just to get published," indicating that Dr. Brown confessed to exaggerating the impact of global warming on Californian wildfires for publication purposes.
- **Fox News** and **The New York Post** also reported on Dr. Brown's assertions, framing them as evidence of bias in climate science publications.[9]

These outlets have utilized Dr. Brown's statements to support narratives that question the integrity of climate science, potentially misleading the public about the genuine risks associated with climate change.

7 PROMOTING FOSSIL FUELS AS SUPERIOR TO CLEAN ENERGY ALTERNATIVES

Introduction

A recurring disinformation tactic involves promoting fossil fuels as superior to clean energy sources by leveraging media partnerships and misleading advertising. This approach often positions fossil fuels as not only essential but also environmentally viable, while downplaying the effectiveness of renewable energy. Such narratives are frequently presented through sponsored content in prominent media outlets, blurring the lines between advertising and genuine journalism, which ultimately delays public acceptance of necessary climate action.

7.1 *REUTERS, NEW YORK TIMES TOP LIST OF FOSSIL FUEL INDUSTRY'S FAVORITE MEDIA PARTNERS*

The relationship between the media and the fossil fuel industry has become increasingly controversial, particularly in the context of climate change. An investigation by Drilled and DeSmog (Westervelt et al. 2023) reveals that prominent news organizations, including Reuters, The New York Times, Bloomberg, The Economist, and The Washington Post, have partnered with fossil fuel companies to produce sponsored content.[10][11] These collaborations often blur the line between genuine editorial work and advertising. This article explores the extent and implications of these collaborations from October 2020 to October 2023.

Major media companies, such as Reuters, The New York Times, and Bloomberg, have created or hosted content for fossil fuel giants like ExxonMobil, Chevron, Shell, and BP. These pieces are often positioned as

[9] https://www.sej.org/headlines/scientist-manipulated-climate-data-conservative-media-celebrated
[10] https://drilled.media/news/drilled-mediagreenwashing
[11] https://theintercept.com/2023/12/05/fossil-fuel-industry-media-company-advertising/

thought leadership articles or updates highlighting these companies' efforts in green energy projects. However, they rarely provide the balanced scrutiny expected from independent journalism, largely presenting the companies' perspective.

FIGURE 8: SCREENSHOOT FROM X - POST BY REUTERS EVENTS

Event of Reuters[12]

For example, Bloomberg's internal brand studio created a campaign for ExxonMobil that discussed efforts to reduce emissions through advanced technology. The campaign was styled like a Bloomberg report, lending legitimacy to ExxonMobil's narrative. Similarly, Politico hosted a Shell-sponsored forum on energy

[12] https://twitter.com/i/status/1585999153540530176

transition policies, which highlighted Shell's renewable energy efforts, even as the company expanded its fossil fuel operations.

This blending of content makes it challenging for readers to distinguish between journalism and paid promotions, allowing fossil fuel companies to control their messaging and appear as climate leaders. Such greenwashing misleads the public, delaying necessary climate action and eroding trust in media institutions. Media organizations that align with fossil fuel companies risk compromising their integrity and hindering public understanding of climate issues.

Partnerships between fossil fuel companies and major media outlets represent a sophisticated form of greenwashing. These collaborations mislead audiences and contribute to public misinformation, delaying climate action. Greater transparency in branded content and a stricter separation between editorial and commercial activities are needed to restore public trust.

8 MEDIA, DISINFORMATION AND DISTRUST:

Introduction

Public trust in media and institutions is vital for effective climate action. However, disinformation campaigns increasingly target this trust by portraying traditional media as fearmongering and suggesting that climate policies are tools for government overreach. This chapter examines how such narratives undermine confidence in both media and scientific authorities.

The first section focuses on strategies used by fossil fuel interests to depict media coverage as exaggerated, thereby reducing public urgency for climate action. The second section explores conspiracy theories that claim climate policies are a means of control, eroding trust in climate science and hindering effective collective responses.

Together, these narratives foster skepticism, weaken societal mandates for action, and obstruct progress on climate initiatives.

8.1 ACCUSING TRADITIONAL MEDIA OF SPREADING UNJUSTIFIED PANIC ABOUT CLIMATE CHANGE

In her article**, "The Impact of Disinformation on Containing Climate Change: A Climate Crisis?",** Paula Gori explores how misleading narratives obstruct progress in combating the climate crisis (Gori 2024).[13] The spread of conspiracy theories depicting climate change as a hoax engineered to control populations

[13] https://www.thenation.com/article/environment/big-oil-fossil-fuel-journalism/

significantly undermines trust in scientific expertise and prevents meaningful collective action towards climate solutions. Disinformation leads to public resistance, reducing political pressure on leaders to enact climate policies.

Similarly, the article "**How Oil Companies Manipulate Journalists"** by Molly Taft, published in *The Nation* on May 15, 2024, delves into the strategies employed by fossil fuel corporations to influence media narratives and public perception. It draws upon a trove of 4,700 internal documents released by the House Oversight Committee, revealing the extent of these manipulative practices. In 2015, investigative reports by *Inside Climate News* and the *Los Angeles Times* had already exposed ExxonMobil's extensive climate research dating back to the 1970s, which confirmed the link between fossil fuels and global warming. Despite this knowledge, ExxonMobil engaged in campaigns to cast doubt on climate science. The article highlights how ExxonMobil's media relations manager, Alan Jeffers, attempted to suppress stories that could damage the company's reputation. For instance, in October 2016, Jeffers urged a Reuters bureau chief to "kill the story" regarding allegations against the American Legislative Exchange Council's lobbying activities.

COMMUNICATIONS				
Focus Area	Business Benefit	Target	Stretch Target	Team Lead
Advertising	Sponsored content advertising is a powerful way to reach a specific audience focused on specific issues. We use sponsored content as a tool to push our messages directly to Washington, D.C., elites who set and influence energy policy – and can decide whether we keep our license to operate.	Do fewer and better sponsored content programs with strategically selected partners who are strong in both creative and promotion.	Emerge as a corporate leader in this space and a model for Group C&EA as it looks to do more sponsored content.	Liz Sidoti and Kelley Brown
Leadership Comms	Our employees are our greatest ambassadors, and our leadership needs stronger tools to be able to communicate with them and, thus, build credibility with them.	Develop and implement a program to better train and equip with appropriate messages GLs and SLLs in the U.S. to talk to employees and, when necessary, external stakeholders.	Increase employee confidence in their leadership across all the businesses in the U.S., according to Pulse 2016 scores, and have leaders be seen as frequently called upon SMEs with external groups.	Liz Sidoti and Carolyn Ballard

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BPXA	Expand license to operate and create additional value		Pass constitutional amendment in 2016 to allow development of the Alaska LNG project	
BPXA	Protect the company against increased costs of doing business and help preserve value		Defeat legislation or ballot initiative that would reverse oil tax reform that was confirmed in 2014	
Remediation Management / GOM	Mitigate legacy environmental liabilities		Pass legislation to enact litigation reform and obtain the governor's signature	
Fuels NA	Protect the brand by eliminating opportunities for misuse and other liability issues; preserve canopy space for preferred products		Defeat E15 mandate legislation in every state in which BP has a retail presence	

FIGURE 9: BP MEMO IN DROPBOX[14]

In early 2021, BP produced a five-page memo for an unnamed executive to prepare for an "on-the-record, exclusive to [The Wall Street Journal] about bp's journey to net zero and how we are reducing methane at our Permian Basin assets"—a favorite topic of oil majors eager to demonstrate good behavior in order to head off government methane regulations.[15]

The internal documents reveal several tactics used by oil companies to shape media coverage: a) company representatives contacted journalists to dissuade them from covering unfavorable stories, as seen in Jeffers's interaction with Reuters, b) Companies provided journalists with pre-packaged narratives that downplayed environmental concerns and emphasized economic benefits, c) Cultivating relationships with media personnel, companies aimed to influence reporting in their favour.

These manipulative practices have significant consequences: a) When media outlets present biased information, public trust in both journalism and scientific consensus on climate change diminishes, b) Skewed media narratives can affect policy decisions by downplaying the urgency of climate action and c) By controlling the narrative, fossil fuel companies can delay the implementation of necessary environmental regulations.

8.2 SUGGESTING A CONSPIRACY AMONG GOVERNMENTS AND INSTITUTIONS TO CONTROL PEOPLE THROUGH CLIMATE POLICIES

In the article, **Conspiracy Theories and Climate Change: A Systematic Review**[16] (Kim-Pong et al 2023), climate change conspiracy theories significantly affect public understanding of climate science, trust in experts, and support for climate action.

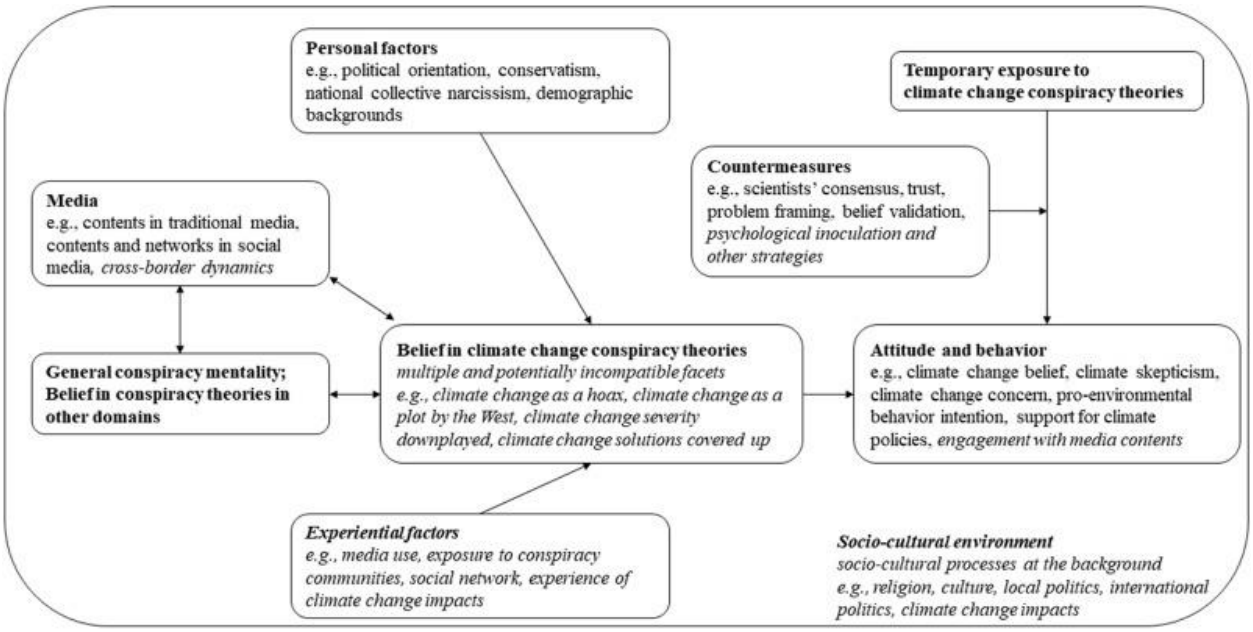
14 https://www.dropbox.com/scl/fo/oc70n800aharoyjtpqja3/AFaJbWBaOjpuh4R77YgdCbI/BP?e=3&preview=BPA_HCOR_00028668.pdf&rlkey=mj3zptkaz0sn70l699dbj4hy7&dl=0

15 https://www.thenation.com/article/environment/big-oil-fossil-fuel-journalism/

16 https://www.sciencedirect.com/science/article/pii/S0272494423001779

One prevalent conspiracy theory is the "chemtrail" belief, which suggests that governments are secretly spraying chemicals into the atmosphere for malicious purposes. This theory is widely circulated, with studies showing that a substantial portion of people (30-40%) believe it to be at least somewhat true. The prevalence of this theory was particularly noted in Allgaier's (2019) thematic analysis of YouTube videos, where almost half of the videos containing climate-related content were found to promote such conspiracies. This theory reflects an ambivalent attitude towards science—simultaneously dismissing scientific authority while using it to validate conspiratorial claims.

Another prominent example involves climate change denial narratives linked to elite blame and populism. In a study by Hameleers and van der Meer (2021), participants exposed to conspiracy theories blaming scientific elites for misleading the public reported stronger negative evaluations of scientists. This suggests that populist conspiracy narratives are effective in eroding public trust in scientific expertise, which is crucial for driving collective climate action.



Note. Italicized are factors and processes that were unexplored or underexplored in existing studies and are suggested for future research.

FIGURE 10: AUTHOR'S REPRESENTATION OF CONSPIRACY THEORIES[17]

International perspectives also shed light on the geopolitical dimensions of climate conspiracy theories. For instance, an interview study by Korppoo (2020) with Russian professionals revealed that many respondents believed climate change was a Western conspiracy intended to undermine Russia's economy by forcing it to buy Western products. This belief contributes to Russia's reluctance to commit to

[17] https://sciencedirect.com/science/article/pii/S0272494423001779

international climate treaties and demonstrates how conspiracy theories can influence national policy and global climate negotiations.

Furthermore, McKewon's (2012) analysis of Australian regional media found themes suggesting that climate change is an exaggerated threat created to advance political agendas. This type of narrative supports group cohesion among skeptics and provides a justification for rejecting climate mitigation policies. Such narratives present an alternative reality that challenges mainstream scientific consensus and weakens the societal mandate for meaningful climate action.

The impact of these conspiracy theories extends beyond just individual beliefs; they shape behaviors and public policy. Studies have shown that exposure to conspiracy narratives diminishes the intention to engage in pro-environmental behavior, reduces trust in scientific consensus, and hinders policy support for climate mitigation. This confluence of misinformation and skepticism ultimately hampers collective efforts to address climate change effectively.

In conclusion, conspiracy theories about climate change present significant obstacles to addressing climate issues. They undermine trust in science, foster misinformation, and contribute to a fragmented public understanding. Addressing these narratives is essential for building consensus on climate action and ensuring that policies are based on scientifically verified information rather than disinformation.

9 DOWNPLAYING CLIMATE IMPACTS:

Introduction

Downplaying the impacts of climate change is a common misinformation strategy that seeks to minimize public perception of its severity and urgency. This section explores how narratives are crafted to deny the extent of climate impacts, diminish the credibility of climate science, and argue that climate mitigation measures are unnecessary or too costly. Such misinformation poses significant challenges to building consensus and motivating effective climate action.

9.1 COMPUTER-ASSISTED CLASSIFICATION OF CLIMATE CHANGE CONTRARIAN CLAIMS[18]

In 2021, research titled '**Computer-Assisted Classification of Contrarian Claims about Climate Change'** was published by several authors (Coan et al. 2021). This research is based on the systematic detection and categorization of climate misinformation using computational tools. The authors aim to develop a comprehensive taxonomy to identify contrarian narratives from sources like conservative think-tank (CTT) websites and contrarian blogs over the past two decades. The dataset comprises over 255,000 documents,

[18] https://www.nature.com/articles/s41598-021-01714-4

making it one of the largest studies analyzing climate misinformation. The authors established a detailed taxonomy categorizing contrarian claims into five primary groups:

1. **It's Not Happening**: Denial of climate change itself.
2. **It's Not Us**: Denial of human responsibility for climate change.
3. **It's Not Bad**: Downplaying the severity of climate impacts.
4. **Solutions Won't Work**: Arguing that climate mitigation efforts are ineffective or too costly.
5. **Climate Science and Scientists Are Unreliable**: Attacks undermining the credibility of climate science and scientists.

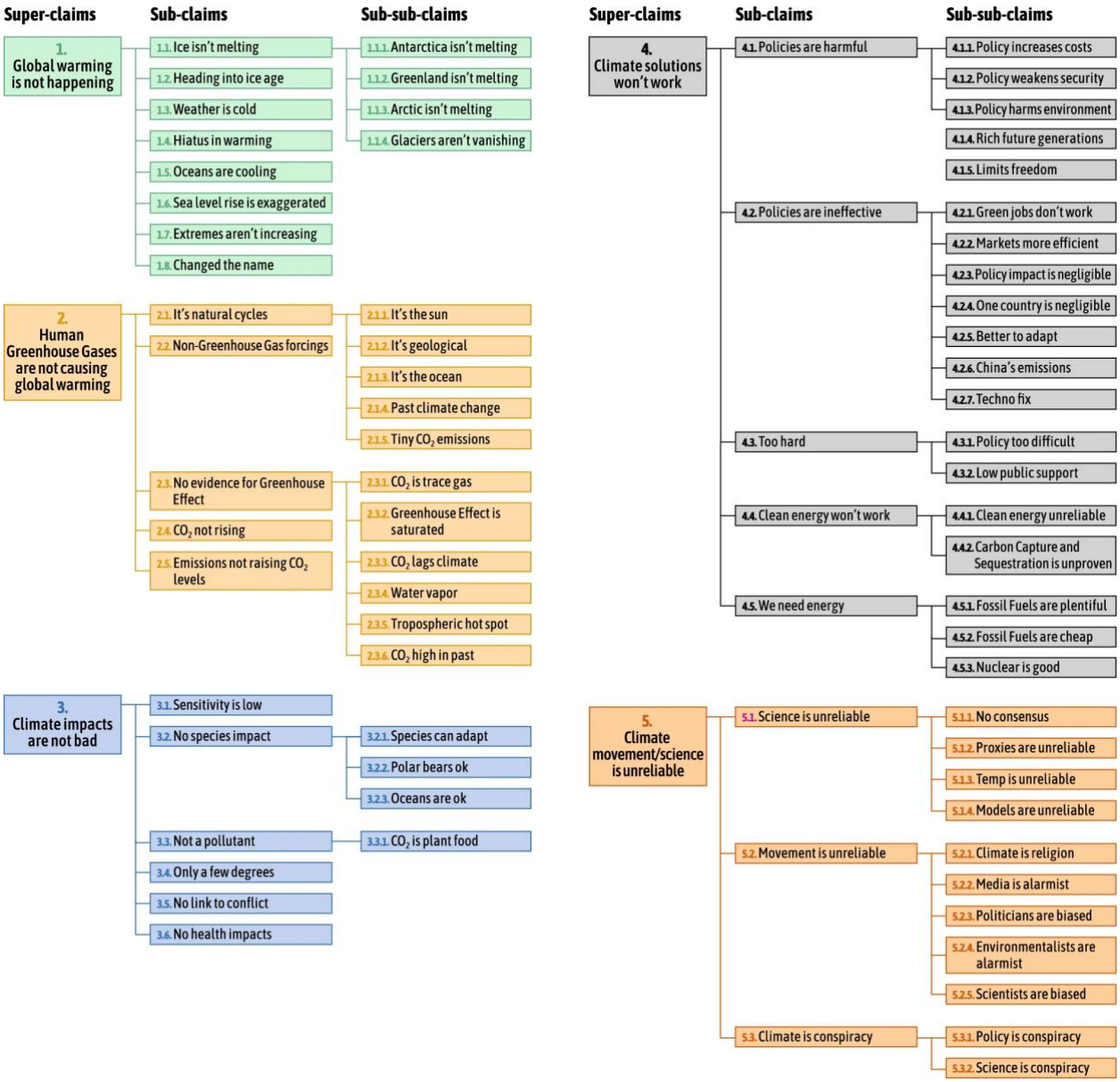


FIGURE 11: A DIAGRAM OF A COMPANY

These categories are further divided into sub-levels, offering detailed distinctions between different arguments. The study's computational model, trained with deep learning, effectively classified these claims, allowing the researchers to trace the evolution of misinformation.

Key Examples and Insights

- **Influence of Funding**: The study demonstrates a direct correlation between funding from conservative donors, especially "dark money" sources like Donors Trust, and the prevalence of contrarian narratives. Organizations receiving such funds predominantly focused on discrediting climate science and arguing against policy measures.
- **Shift in Claims Over Time**: The research found that claims have evolved. Initially, there were more direct denials of climate change and its anthropogenic causes. Over time, however, emphasis shifted towards arguments against climate policies, coinciding with political developments such as the Obama administration's climate efforts.
- **Conspiratorial Narratives**: There was a noted spike in conspiratorial messaging, particularly during politically significant events such as "Climategate" in 2009, where contrarian actors focused on undermining the integrity of climate scientists.

Challenges and Contributions

The research by Coan et al. highlights the conceptual difficulty of distinguishing between legitimate skepticism and outright misinformation. Many claims blend factual elements with misleading rhetoric, complicating classification. The authors used machine learning to overcome this by categorizing not only broad misinformation themes but also specific contrarian arguments.

Implications

This work contributes to understanding how climate misinformation is structured and distributed. The ability to classify specific contrarian claims offers an essential tool for countering misinformation, improving public discourse on climate change, and addressing barriers to effective climate policy. The research suggests that future misinformation efforts will likely focus on attacking climate solutions rather than denying the phenomenon itself.

Conclusion

The study provides an in-depth look into how climate change contrarianism has evolved and highlights the influential role of funding in promoting such narratives. Addressing these misinformation tactics is crucial for fostering public understanding and achieving effective climate action.

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10 MISREPRESENTING DATA ON SEA LEVEL RISE, ICE MELT, OR TEMPERATURE INCREASES

Introduction

Misinformation about climate science often involves simplifying or distorting key concepts related to sea level rise, ice melting, and temperature changes. This section examines how misleading narratives, such as viral memes and oversimplified analogies, are used to dismiss the reality of sea-level rise and the role of melting ice. These misrepresentations aim to create confusion about the effects of global warming, thereby hindering public understanding and delaying necessary climate action.

10.1 VIRAL MEME MISREPRESENTING MELTING ICE AND SEA-LEVEL RISE[19]

A viral meme spreading disinformation became viral while claiming that global warming and melting ice have no effect on sea levels and suggesting that sea-level rise is a hoax (see picture 1). The meme presents two images of a jar with floating ice cubes, stating that, as the ice melts, the water level remains unchanged, hence dismissing sea-level rise. This claim misleads by focusing exclusively on floating ice and disregards other crucial factors.

Misrepresentation of Facts

The meme wrongly equates the melting of floating ice (like sea ice and icebergs) with the overall process contributing to rising sea levels. Floating ice, such as icebergs, does not significantly affect sea levels when it melts because it already displaces water. However, **land ice**, including glaciers, permafrost, and ice sheets in Greenland and Antarctica, adds new water to the ocean when it melts, resulting in a direct increase in sea level. This aspect is crucial to understanding sea-level rise, but it is entirely ignored by the meme.

Scientific Context

According to a study cited by NASA, the melting of land-based ice contributes significantly to sea-level rise. NASA's data and studies, as well as the European Space Agency's educational videos, clearly indicate that the global ice mass melting into the oceans is a major contributor to rising sea levels. Additionally, thermal expansion also plays a significant role. Warmer ocean temperatures cause water to expand, accounting for approximately **34%** of the observed sea-level rise.

[19] https://climatefactchecks.org/viral-meme-misrepresenting-melting-of-ice-claims-sea-level-rise-is-a-hoax/

FIGURE 12: A COMPARISON OF A MEASURING CUP WITH ICE AND WATER

Expert Viewpoint

Climate scientist Dr. Partha J. Das points out that the viral meme is an oversimplification and misrepresentation of the science behind sea-level rise. The physical processes involved are complex, including contributions from land ice melt and thermal expansion, both of which cannot be explained using simplistic analogies like the melting ice in a glass.

Educational Activity

To counter the misinformation, NASA offers educational resources that effectively demonstrate the difference between melting **sea ice** and **land ice** using simple models. These activities help to visualize how land-based ice directly contributes to sea-level rise, unlike floating ice.

11 ATTACKS ON CLIMATE ACTIVISTS AND MOVEMENTS:

Introduction

Climate activists, especially youth-led initiatives, often face targeted disinformation and negative portrayals aimed at discrediting their work. These narratives typically paint activists as extremists or suggest that their actions are misguided or hypocritical. Moreover, climate action is frequently framed as an agenda driven by elites, disconnected from the needs of ordinary people. These tactics not only attempt to delegitimize the movement but also sow public distrust, making it harder to garner broad support for climate action. This section delves into these disinformation strategies and their impact on public perception and climate advocacy.

11.1 A. DISCREDITING YOUTH CLIMATE MOVEMENT

The report **Enemies of Society: How the Media Portray Climate Activists,** published by the Green European Journal (Levantesi 2023), explores how climate activists are often negatively depicted in mainstream media.[20] Activists are often labeled with derogatory terms such as "sociopaths," "vandals," and "eco-anarchists," which undermines their cause and alienates them from society. This tactic, used widely in mainstream media, delegitimizes climate movements and frames them as security threats.

The media often focuses on the disruptive nature of protests by movements like Just Stop Oil and Last Generation, rather than addressing the reasons for these actions. Activists are framed as radical, leading to public annoyance and reduced support for climate initiatives. In Germany, comparisons were even made between climate groups and extremist groups like the RAF, reinforcing a perception of danger.

Mocking language, such as the use of terms like "Klima-Kleber" in German media, aims to trivialize activists' efforts. Such portrayals, particularly those targeting Greta Thunberg and youth movements like Fridays for Future, discredit climate actions and promote negative public sentiment.

The escalation of rhetoric has also led to the criminalization of climate activism. Governments in Germany, Italy, and the UK have used anti-activism narratives to justify police raids and legislation restricting protests. This criminalization discourages broader participation in climate movements and legitimizes harsh measures against activists.

The overall impact of these narratives is a public debate shaped to oppose climate action, with climate activists framed as threats to social stability. This framing obstructs the urgency of climate action,

[20] https://www.greeneuropeanjournal.eu/enemies-of-society-how-the-media-portray-climate-activists/

detracting from the real issues of the climate crisis and contributing to societal resistance against environmental reforms.

11.2 PORTRAYING CLIMATE ACTION AS AN ELITE PROJECT AGAINST ORDINARY PEOPLE'S INTERESTS

In 2020 the journal 'Environmental Politics' published an article titled '**The role of populist attitudes in explaining climate change, skepticism and support for environmental protection** (Huber 2020)[21] The author explores how populist attitudes relate to climate change skepticism and support for environmental protection, using data from the UK. It argues that climate change and environmental degradation are easily framed as elite projects, which can fuel skepticism among those with strong populist attitudes. This is because populists often feel under-represented and distrust the elite, leading them to reject policies they perceive as top-down and detached from their needs.

Research from the 2016 British Election Study revealed a clear link between populist attitudes and skepticism toward human-induced climate change. People with stronger populist views were less likely to support environmental protection, often believing that existing measures were excessive. This correlation persisted across the political spectrum, indicating that populist attitudes shape climate change views independently of left- or right-wing ideology.

These findings challenge traditional explanations that focus solely on political ideology. The top-down nature of climate policy—often decided in international forums with limited public input—can alienate those with populist leanings. The study suggests that governments should explore new communication strategies and increase citizen participation in decision-making. Moreover, presenting scientific evidence alone may not convince climate skeptics with populist views, since their distrust of elites often extends to scientific information.

12 ECONOMIC FEARMONGERING:

Introduction

Economic fearmongering is a significant barrier to climate action, with disinformation often exaggerating the costs of climate policies or predicting widespread job losses. These narratives aim to generate resistance against climate initiatives by portraying them as too expensive or economically damaging. This section explores the disinformation tactics used to inflate perceived economic challenges, including

[21] https://rsa.tandfonline.com/doi/full/10.1080/09644016.2019.1708186#d1e111

overstated costs, alleged job losses, and the promotion of delay tactics. The goal is to shed light on how these narratives distort public understanding and hinder the adoption of necessary climate policies.

12.1 A. EXAGGERATING THE ECONOMIC COSTS OF CLIMATE ACTION

In 2022, McKinsey Global Institute published a report called '**The net-zero transition: What it would cost, what it would bring'.** The aim of this report is to examine the economic transformation needed to reach net-zero emissions by 2050 (Krishnan et al. 2022) .[22] The report simulates a hypothetical 1.5°C scenario, using data from the Network for Greening the Financial System (NGFS) to analyze demand, capital allocation, costs, and jobs across sectors and countries. The transition is expected to be universal, significant, and front-loaded, requiring an estimated $275 trillion in capital spending. The effects will be unevenly distributed, with sectors like fossil fuels facing significant disruption, while renewable energy and green technologies experience growth. Countries with lower GDP per capita and heavy reliance on fossil fuels will face greater challenges. Managing the transition will require collective action and global collaboration, as the report stresses the need to balance short-term risks with the long-term dangers of inaction.

Critiques of the McKinsey report have been present in the press. See in particular Buckhart 2022.[23] The McKinsey report estimates the cost of transitioning to net zero by 2050 at $9.2 trillion annually. However, Burkhart argues that this headline figure is misleading and suggests an insurmountable financial burden. In reality, when compared to business-as-usual energy spending, the incremental cost would be closer to

[22]https://www.mckinsey.com/~/media/mckinsey/business%20functions/sustainability/our%20insights/the%20net%20zero%20transition%20what%20it%20would%20cost%20what%20it%20could%20bring/the-net-zero-transition-what-it-would-cost-and-what-it-could-bring-final.pdf

[23] https://medium.com/oneearth/no-mckinsey-it-will-not-cost-9-trillion-per-year-to-solve-climate-change-3d0e20af52a

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$1 trillion per year.

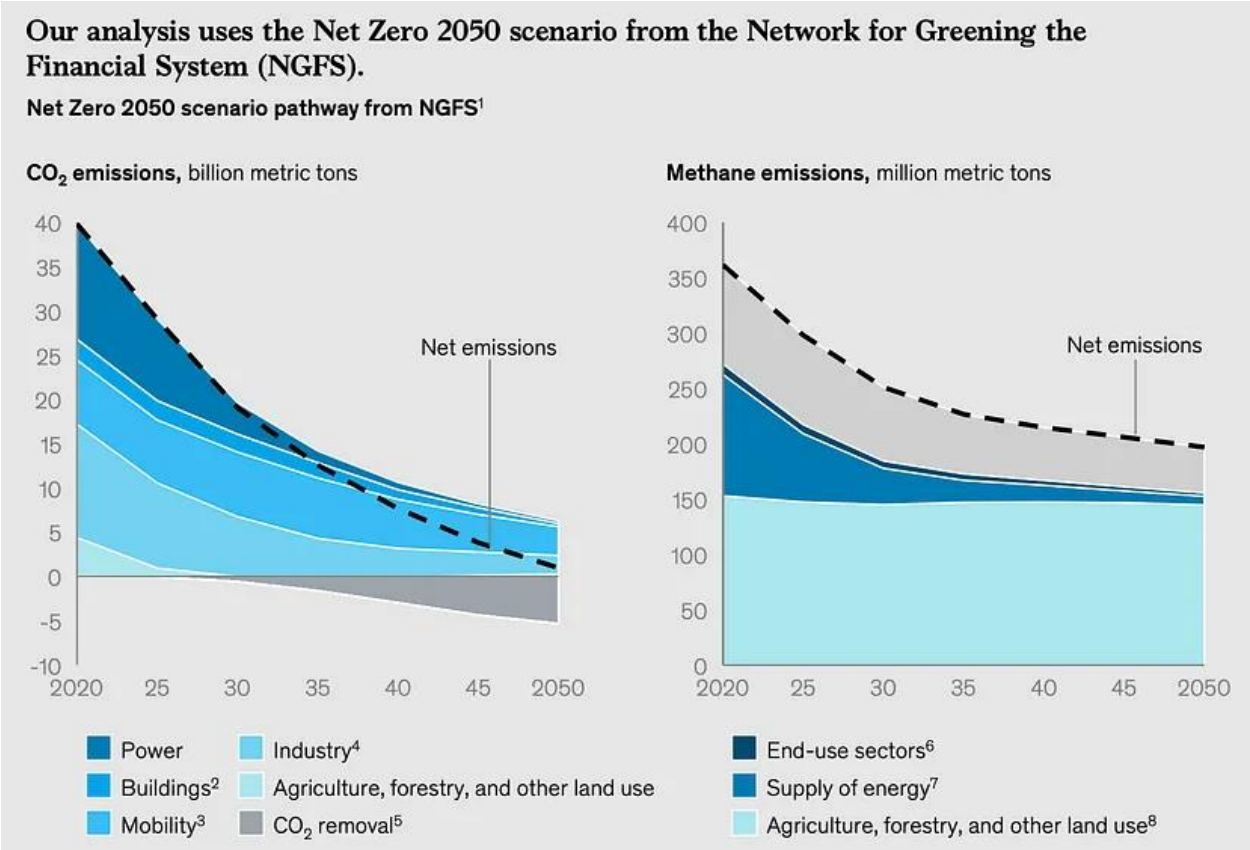

FIGURE 13: A GRAPH OF ENERGY CONSUMPTION

Key arguments include:

1. **Misleading Costs**: The $9.2 trillion figure includes existing energy costs; the additional cost is much lower.
2. **Ignoring Innovation**: The McKinsey report overlooks accelerating innovations and declining costs in renewable energy.
3. **Solar and Wind Growth Underestimated**: McKinsey assumes a slowed adoption of renewables, while actual trends show rapid growth.
4. **Inflated Costs of Renewables**: McKinsey overestimates grid integration costs, while studies show existing infrastructure can support significant renewable penetration.
5. **Lack of Transparency**: The report fails to disclose pricing models for renewable deployment, leading to pessimistic estimates.
6. **Fossil Fuel Rents Ignored**: Transitioning to renewables could save around $2 trillion annually in fossil fuel rents.
7. **Pessimism and Fossil Dependence**: McKinsey's focus on potential losses for fossil-dependent economies neglects the overall benefits of transitioning, such as job creation and energy stability.

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8. **Net Zero by 2050 Not Achieved**: The McKinsey model does not fully achieve net zero, relying heavily on controversial technologies like BECCS instead of more efficient renewable solutions.

Burkart concludes that shifting rapidly to 100% renewable energy would be more efficient and cost-effective than maintaining fossil fuel reliance and emphasizes the need for honest transition models focused on real climate solutions.

12.2 CLAIMING THAT CLIMATE POLICIES WILL LEAD TO JOB LOSSES OR REDUCED QUALITY OF LIFE

In 2019, the journal 'Climate Policy' published an article titled "**Job losses and political acceptability of climate policies: why the 'job-killing' argument is so persistent and how to overturn it**[24] (Vona 2019). The article examines how the perception of job losses due to climate policies affects their political acceptability. Although research generally agrees that the overall welfare benefits of environmental policies outweigh the costs, the negative impacts are often concentrated in specific areas, sectors, and social groups already struggling with economic hardship. This creates a collective action problem where those experiencing significant losses are more motivated to oppose these policies than those benefiting modestly.

The research highlights several factors that amplify the "job-killing" argument, including the impact of the 2008 global recession and increased international competition. These events prioritised immediate economic concerns over long-term environmental issues, leading to a decline in public support for climate action and exemptions for polluting industries. The geographical concentration of job losses in areas dependent on polluting industries further exacerbates the problem. Social interactions and peer pressure within these communities reinforce negative perceptions, solidifying opposition to climate policies.

Political factors like the weakening of unions and reduced government budgets for worker compensation also contribute to the issue. The study argues that the "job-killing" argument, often used by brown lobbies, becomes a powerful tool to exploit economic anxieties and create an alliance between industry groups and affected workers. It suggests that addressing these concerns through targeted policies is crucial for increasing the political acceptability of climate action. This includes providing financial support and retraining opportunities for displaced workers, investing in green industries to generate new jobs, and potentially using carbon tax revenue to reduce labour taxation. Ultimately, the paper emphasises the need for a more equitable distribution of the benefits and burdens of climate policies to build broader public support.

[24] https://sciencespo.hal.science/hal-03403629/document

13 PROMOTING "DELAYISM" BY ARGUING FOR POSTPONING CLIMATE ACTION DUE TO ECONOMIC CONCERNS

Introduction

Delayism, or advocating for the postponement of climate action, is a powerful strategy used by various industries to undermine urgent climate initiatives. This tactic involves publicly acknowledging the need for climate action while subtly promoting the idea that immediate changes are either too costly or impractical, thus shifting the burden to future generations. This section discusses how both the American electric utility industry and major fossil fuel companies have systematically employed delayism to protect their interests, maintain reliance on fossil fuels, and hinder the transition to a sustainable energy future.

13.1 *"THE AMERICAN ELECTRIC UTILITY INDUSTRY'S ROLE IN PROMOTING CLIMATE DENIAL, DOUBT, AND DELAY*

In 2022, several researchers published an interesting piece of research titled **'The American electric utility industry's role in promoting climate denial, doubt, and delay'** (Williams, 2022)[25]", the American electric utility industry has played a significant role in promoting climate denial, doubt, and delay, as evidenced by a study published in *Environmental Research Letters*. The study examined 188 documents on climate change from 1968 to 2019, authored by various organizations within the industry, including individual electric utilities, trade associations, research groups, and front groups. The research revealed a shift in the industry's messaging over time, moving from alignment with scientific understanding in the early years to active promotion of doubt and denial as the scientific consensus on climate change solidified.

From the 1990s to 2000, utility organizations, including prominent ones like the Edison Electric Institute (EEI) and the Electric Power Research Institute (EPRI), engaged in activities that cast doubt on climate science and funded front groups that spread climate denial. These front groups, such as the Global Climate Coalition (GCC), the Information Council on the Environment (ICE), and the Greening Earth Society (GES), employed tactics like downplaying the severity of climate impacts and disseminating misleading information to the public. Notably, some of these campaigns were financed using funds from captured customers who had no alternative electricity providers.

After 2000, the industry's messaging shifted towards delay tactics, acknowledging the reality of climate change but advocating for continued reliance on fossil fuels and highlighting the responsibility of other sectors or countries. Notably, many of the utilities most actively involved in promoting climate doubt and denial in the past are currently among the industry's largest polluters, demonstrating a correlation between their historical actions and their current slow pace of transitioning to clean energy. The article

[25] https://iopscience.iop.org/article/10.1088/1748-9326/ac8ab3/pdf

Funded by the European Union

concludes that a significant portion of the American electric utility industry has consistently engaged in messaging designed to avoid responsibility for reducing pollution, hindering progress towards a clean energy future.

13.2 *"DENIAL, DISINFORMATION, AND DOUBLESPEAK: BIG OIL'S EVOLVING EFFORTS TO AVOID ACCOUNTABILITY FOR CLIMATE CHANGE"*

In 2024, the U.S. House of Committee on Oversights and Accountability Democrats jointly with the senate published a study titled '**Denial, disinformation, and doublespeak: Big Oil's evolving efforts to avoid accountability for climate change'**[26] conducted by the joint staff report prepared for the House Committee on Oversight and Accountability by the Democratic staff members of the House and Senate in April 2024. The report focuses on the deceptive tactics used by fossil fuel companies to obstruct and delay efforts to address climate change. The sources highlight how these companies have employed doublespeak, publicly promoting climate action while privately working to undermine it.

The report provides evidence that fossil fuel companies, including ExxonMobil, Chevron, Shell, and BP, have consistently engaged in practices that contradict their stated support for the Paris Agreement. They have set emission reduction targets that rely on ambiguous language and long-term goals, avoiding more aggressive and necessary action. Internal communications reveal skepticism towards the feasibility of achieving emissions cuts consistent with the Paris Agreement targets. The companies also downplay their responsibility for reducing emissions from the burning of their products, shifting the blame onto consumers.

Furthermore, the authors expose industry's efforts to greenwash natural gas, presenting it as a clean energy alternative despite the significant risks associated with methane emissions. Fossil fuel companies have funded extensive media campaigns promoting natural gas while acknowledging internally that it is no cleaner than other fossil fuels without widespread carbon capture technology. The report also underscores that these companies have lobbied against methane emissions regulations and climate policies, contradicting their public support for such measures. The sources conclude that the fossil fuel industry has engaged in a calculated campaign of deception to protect its profits and maintain the status quo, delaying meaningful action on climate change.

[26] https://www.budget.senate.gov/imo/media/doc/fossil_fuel_report1.pdf

14 GREENWASHING

Introduction

Greenwashing refers to the practice of businesses making misleading claims about their environmental efforts to appear more sustainable, often without substantial action. As the demand for eco-friendly products and corporate responsibility grows, greenwashing has become more sophisticated, prompting legal and public scrutiny. This section explores the challenges in defining and addressing greenwashing through legal frameworks and investor pressure, as well as the rise of climate-washing litigation, where companies are increasingly held accountable for false environmental claims. These actions play a crucial role in promoting transparency, corporate accountability, and genuine progress towards sustainability goals.

14.1 *"SUMMARY REPORT: GREENWASHING – LEGAL RISKS AND OPPORTUNITIES*

The Centre for Climate Engagement published in 2024 a Summary Report titled **Greenwashing – Legal Risks and Opportunities** (Brook et al. 2024)[27]". They authors define there greenwashing as a tactic where businesses make misleading or untrue statements about their environmental impact to gain a commercial advantage. They explain that this practice has become more sophisticated as demand for sustainable products and services rises. The report emphasizes that there is no single legal definition of greenwashing and no one body dedicated to tackling it. Instead, a patchwork of laws and regulations, primarily focused on consumer protection and financial regulation, are used to address the issue.

Consumer protection laws have been used to challenge misleading environmental claims related to practices such as carbon offsetting and the use of recycled materials. For instance, KLM faced legal action under the EU's Unfair Commercial Practices Directive for inaccurate claims about carbon offsetting and bioenergy. Financial regulation is also being used to prevent greenwashing in 'sustainable' financial products and services. Regulators like the UK's Financial Conduct Authority (FCA) have introduced rules to address this. The report also highlights the growing number of lawsuits globally targeting alleged greenwashing. These cases often focus on misleading advertising claims but can also target corporate climate commitments.

The authors note that while litigation and regulation are essential tools in combating greenwashing, they may not be able to address all forms of this practice. They argue that public scrutiny and investor pressure are vital in holding businesses accountable for misleading environmental claims. The sources conclude that addressing greenwashing requires a comprehensive approach involving legal frameworks, regulatory

[27] https://climatehughes.org/greenwashing/#_edn10

action, litigation, and public pressure to promote transparency and integrity in corporate environmental claims. This multi-pronged strategy is crucial to ensuring that markets align with sustainability goals and that public trust in environmental statements is not eroded.

14.2 *CLIMATE-WASHING LITIGATION: TOWARDS GREATER CORPORATE ACCOUNTABILITY?*

A team of researchers of the London School of Economics published an article in 2024 titled '*Climate-washing litigation: towards greater corporate accountability'*? (Velez-Echeverri et al. 2024) [28][29] They explore the rising trend of "climate-washing" litigation, where companies are challenged in courts for misrepresenting their progress towards climate goals. With over 120 cases filed between 2016 and 2023, corporate climate claims are increasingly scrutinized, with notable victories such as the KLM case in the Netherlands, which found many of its climate claims illegal. These litigations have largely succeeded in enhancing corporate accountability and transparency.

Germany and the UK have seen the highest number of successful cases, while the US has had fewer favorable outcomes. The majority of successful cases (70%) have focused on misleading advertising. Recent cases also highlight the human rights violations concealed under climate-washing, like in the Brazilian Amazon, where carbon credits were misrepresented without community benefit.

The article emphasizes the need for broader scrutiny across sectors, including advertising and PR firms, big tech, and media outlets that contribute to climate misinformation. The complaint against Saudi Aramco and the Financial Times for misleading advertisements shows how even media outlets are now being held accountable.

Climate-washing litigation contributes to deterring misinformation and increasing transparency. However, more systemic changes, research, and public awareness are needed to assess whether these legal victories significantly reduce carbon emissions or achieve broader climate goals.

15 CONSPIRACY THEORIES

Introduction

The rise of conspiracy theories has added a significant layer of complexity to the climate misinformation landscape (Kim-Pong et al. 2023). Notably, the "Great Reset" initiative by the World Economic Forum has become a prominent target for such theories, misinterpreted as a ploy to establish authoritarian control

[28] https://www.lse.ac.uk/granthaminstitute/news/climate-washing-litigation-towards-greater-corporate-accountability/
[29] https://cssn.org/wp-content/uploads/2022/01/CSSN-Research-Report-2022-1-Climate-Washing-Litigation-Legal-Liability-for-Misleading-Climate-Communications.pdf

(Gallagher et al. 2020). These theories not only distort the intent of global economic discussions but also merge with other climate misinformation narratives, amplifying public fear and distrust. This section explores the intertwining of conspiracy theories with climate change narratives, demonstrating their impact on public perception and the challenges they pose for effective climate communication.

15.1 *A. GREAT RESET*

The "Great Reset," an initiative launched by the World Economic Forum (WEF) in 2020 to address the economic fallout of COVID-19, has become a focal point of conspiracy theories (Gallagher et al. 2020).[30] Originally intended to rethink global economies towards more equitable outcomes, the vague nature of the Great Reset has made it ripe for misinterpretation. Conspiracy theorists frame the WEF as a manipulative force trying to orchestrate global economic collapse or impose authoritarian rule. Misinterpretations like "You'll own nothing. And you'll be happy" were drawn from a 2016 WEF video and misconstrued as evidence of a secret plan to strip individuals of private property.

This conspiracy has been amplified globally by right-wing media figures such as Tucker Carlson, Ben Shapiro, and Thierry Baudet, and even by non-right-wing commentators like Russell Brand. It draws connections to older conspiracies, such as the New World Order, Agenda 2030, and climate control theories, and ties in anti-climate change rhetoric by alleging that climate action aims to impose totalitarianism.

The narrative has gained massive traction, particularly online, with millions of views across platforms like TikTok and Facebook. These claims have emboldened extremist communities, with some inciting violence against perceived elites. Despite the spread of misinformation, social media platforms and the WEF itself have largely failed to effectively counter these false narratives, allowing the conspiracy to continue evolving and influencing new audiences.

ii. The report titled **"Climate change misinformation in the age of COVID-19: A data-driven analysis to help identify and combat climate change misinformation** (APCO 2021)"[31] explores the phenomenon of climate change misinformation, defining it as communication that contradicts or distorts the scientific evidence and expert consensus on climate change. It examines the various narratives, drivers, and impacts of climate misinformation, highlighting its evolution from outright denial to a more complex set of narratives encompassing scepticism, doubt, and defeatism.

This APCO 2021 report identifies five key climate misinformation narratives: The Great Reset, Climate Change and Financial Costs, Climate Change and Doomerism, Climate Change as a Natural Occurrence, and Climate Change and Arson. Notably, the study finds that these narratives are often driven by external

[30] https://www.isdglobal.org/explainers/the-great-reset/

[31] https://apcoworldwide.com/static/11809384f6b713efd29076e383d9f9ff/Climate%20Misinfo%20Report_FINAL.pdf

events, such as political summits or policy announcements, rather than organized grassroots movements. The COVID-19 pandemic significantly impacted climate misinformation, with narratives increasingly intertwined with broader conspiracy theories like QAnon and anti-vaccine propaganda.

The findings and analysis stress the importance of distinguishing between discussion about climate misinformation and the actual propagation of misinformation, noting that the former significantly outweighs the latter. This suggests that while the volume of climate misinformation online might be relatively low, its impact can be considerable, especially given its connection to broader societal anxieties and conspiracy theories. The report calls for proactive measures to counter climate misinformation, including intelligent listening, message testing, responsible communication, pre-bunking strategies, data sharing, and media literacy initiatives. It also advocates for honesty and evidence-based approaches in communicating about climate change, emphasising the need to balance the gravity of the crisis with the possibility of effective action.

16 SOCIAL MEDIA AND CLIMATE CHANGE DISINFORMATION

Introduction

Social media platforms, particularly Twitter, Facebook, and YouTube, have become powerful tools for spreading climate change misinformation. Studies reveal how these platforms facilitate the rapid dissemination of false narratives, often promoted by influential accounts, automated bots, and well-funded fossil fuel interests. This section explores how the nature and structure of social media amplify climate misinformation, leveraging algorithms and cognitive biases to undermine public understanding and hinder meaningful climate action. It also highlights the inadequacy of current regulatory measures and emphasizes the need for better moderation and media literacy to counteract the pervasive influence of climate misinformation online.

16.1 *"TWITTER'S FAKE NEWS DISCOURSES AROUND CLIMATE CHANGE AND GLOBAL WARMING"*

The article by Al-Rawi et al. (2021) titled "**Twitter's Fake News Discourses Around Climate Change and Global Warming"** investigates how misinformation about climate change spreads on Twitter and its impact on public perception. The study categorizes fake news narratives, highlighting common themes such as climate denial, accusations of conspiracy, and distrust towards scientists.[32]

[32] https://www.frontiersin.org/journals/communication/articles/10.3389/fcomm.2021.729818/full

One key finding is how some users promote the belief that climate change is a fabricated issue designed to control public policy or justify financial investments in renewable energy sectors. This misinformation often targets influential accounts, allowing these narratives to quickly gain traction through retweets.

The researchers identified that fake news typically takes root via a few influential accounts with many followers, who post sensationalist or conspiratorial content regarding climate issues. This content is then amplified by automated accounts (bots) and human users, creating an echo chamber that significantly influences public opinion.

Impact: The article points out that Twitter acts as a fertile ground for misinformation, primarily due to its format, which encourages rapid sharing without verification. The lack of stringent regulation regarding climate-related information means that false narratives, such as those that downplay the effects of global warming or present climate science as "fake," can spread widely. This has substantial negative impacts on public understanding and support for climate action.

Recommendations: To counteract these issues, the article suggests greater efforts towards content moderation, along with enhanced digital literacy for users to better identify and critically evaluate the content they consume. Reliable science communication must be made more prominent to drown out the noise of misinformation.

These insights illustrate how social media platforms, particularly Twitter, can contribute to the dissemination of climate misinformation and how this poses a challenge to global climate action efforts.

16.2 *CLIMATE MISINFORMATION ON SOCIAL MEDIA IS UNDERMINING CLIMATE ACTION*

The article "Climate Misinformation on Social Media Is Undermining Climate Action" by Jeff Turrentine highlights how social media is being used to spread climate misinformation, undermining public understanding and delaying climate action (Turrentine 2022).[33] Fossil fuel interests, facing increased scrutiny, have shifted from outright denial of climate change to spreading misinformation to sow doubt and prevent decisive action. This content is often disseminated through think tanks, conservative groups, and social media influencers, making it appear credible to average users.

The key points of the article can be summarized as follows:

- **Nature of Misinformation**: Climate misinformation is often funded by fossil fuel interests and uses platforms like Facebook, Twitter, and YouTube to spread doubt. It exploits cognitive, social, and algorithmic biases to make misinformation seem believable.

[33] https://www.nrdc.org/stories/climate-misinformation-social-media-undermining-climate-action

- **Impact**: This misinformation strategy is effective in creating divisions, promoting political inaction, and undermining mitigation efforts. This tactic mirrors the methods used by the tobacco industry to deny the dangers of smoking.
- **Social Media Amplification**: Social media platforms, through biased algorithms and echo chambers, make it easy for misinformation to spread widely. Platforms like Facebook and YouTube have taken some steps to counter misinformation, but efforts have largely been inadequate.
- **Corporate Tactics**: Fossil fuel companies, like ExxonMobil, use covert advertising to shape narratives against renewable energy, often masquerading as grassroots campaigns. Trade groups have also paid influencers to promote fossil fuels over renewable alternatives.
- **Response and Regulation**: Social media companies' responses to misinformation have been inconsistent and often ineffective. Some platforms have begun to label misinformation or redirect users to credible information, but significant challenges remain.

This research emphasizes the need for social media users to be more vigilant in distinguishing facts from falsehoods, as legislative and platform responses have been insufficient to curb the spread of climate misinformation. The article concludes by pointing out that social media's capacity to spread misinformation has become a key tool for fossil fuel interests, leveraging public division to maintain their influence.

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17 CONCLUSION

The systematic spread of disinformation about climate change presents a significant challenge in mobilizing public support for climate action. The major disinformation narratives identified – climate change denial, accusations of media alarmism, criticism of renewable energy, portrayal of climate activists as hypocritical, linkage to broader conspiracy theories, and the role of social media in amplifying these messages – all seek to erode the legitimacy of climate science and undermine the urgency of climate action. Addressing these narratives requires a concerted effort that includes public education, transparent communication, collaboration with credible media, and stricter regulations for social media platforms to identify and mitigate the spread of misinformation. Governments, civil society organizations, and social media companies must work together to ensure that accurate information prevails over falsehoods. Only through such measures can we hope to foster a more informed public, build trust in climate science, and effectively advance global climate action. Furthermore, there is a need to bolster resilience against misinformation by equipping individuals with the tools to critically evaluate content, thereby strengthening societal consensus for urgent climate action.

It is equally essential to leverage technology to counteract misinformation, such as using AI tools for identifying and flagging false information and enhancing digital literacy campaigns across different demographics. The involvement of educational institutions, grassroots organizations, and influential community leaders can also be pivotal in reshaping the discourse around climate change and encouraging proactive engagement. Ultimately, combating climate disinformation is not just about debunking falsehoods but about building a culture that values and understands the significance of scientific truth in securing a sustainable future for all.

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Review Sheet of Deliverable/ Milestone Report
D12.4 Desk Review Report on Misinformation/ Disinformation on Climate Change and the war in Ukraine

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Review date	21/01/2025

Disclaimer: This assessment reflects only the author's views and the European Commission is not responsible for any use that may be made of the information contained therein"

Mark with X the corresponding column:

Y= yes	N= no	N = not applicable

ELEMENT TO REVIEW	Y	N	NA	COMMENTS
FORMAT: Does the document … ?				
…include editors, deliverable name, version number, dissemination level, date, and status?	Y			The document contains all necessary administrative details, ensuring clarity and compliance.
…contain a license (in case of public deliverables)?	Y			License is included. No issues.
…include the names of contributors and reviewers?	Y			Not applicable
….has a version table consistent with the document's revision?	Y			The version history table is present but incomplete in some places.
… contain an updated table of contents?	Y			Yes, no issues.
… contain a list of figures consistent with the document's content?	Y			Yes, no issues.
… contain a list of tables consistent with the document's content?	Y			Yes, no issues.
… contain a list of terms and abbreviations?	Y			Yes, no issues.
… contain an Executive Summary?	Y			Yes, no issues.
… contain a Conclusions section?	Y			Yes.
… contain a List of References (Bibliography) in the adequate format, if relevant?	Y			Yes.
… use the fonts and sections defined in the official template?	Y			Formatting follows the standard template.
… use correct spelling and grammar?	Y			Generally good
… conform to length guidelines (50 pages maximum (plus Executive Summary and annexes)	Y			Within the limit.
… conform to guidelines regarding Annexes (inclusion of complementary information)	Y			Annexes are present and relevant.
… present consistency along the whole document in terms of English quality/style? (to avoid accidental usage of copy&paste text)	Y			Generally consistent.
About the content…				
Is the deliverable content correctly written?	Y			The document is comprehensive, structured logically, and easy to follow.
Is the overall style of the deliverable correctly organized and presented in a logical order?	Y			Yes, the overall style of Deliverable 12.4 is correctly

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ELEMENT TO REVIEW	Y	N	NA	COMMENTS
				organized and presented in a logical order. The organization of the deliverable is clear, logical, and easy to follow.
Is the Executive Summary self-contained, following the guidelines and does it include the main conclusions of the document?	Y			The Executive Summary is complete, well-structured, and aligned with the project guidelines. It effectively conveys the core insights and conclusions of the deliverable, making it a strong and impactful introduction. No changes are required
Is the body of the deliverable (technique, methodology results, discussion) well enough explained?	Y			Yes, the body of the deliverable is well-explained, with a clear breakdown of the technique, methodology, results, and discussion. The methodology is justified and transparently applied, ensuring a structured approach to analyzing misinformation. The results and discussion sections provide in-depth insights, categorizing disinformation narratives and assessing their impact effectively. No further refinements are necessary.
Are the contents of the document treated with the required depth?	Y			es, the contents of the document are treated with the required depth. The deliverable provides a comprehensive analysis of misinformation narratives, supported by academic sources, case studies, and real-world examples. The discussions are detailed yet accessible, ensuring a thorough examination of the impact, dissemination strategies, and countermeasures against disinformation. No additional depth is needed.
Does the document need additional sections to be considered complete?	Y			No, the document does not need additional sections to be considered complete. It fully covers all necessary aspects,

ELEMENT TO REVIEW	Y	N	NA	COMMENTS
				including introduction, methodology, detailed analysis of misinformation narratives, discussion, and conclusions. The structure is coherent and comprehensive, ensuring that all relevant topics are addressed. No further sections are required
Are there any sections in the document that should be removed?	Y			No, there are no sections that should be removed. Every section in the deliverable is relevant, well-structured, and contributes meaningfully to the overall analysis.
Are all references in the document included in the references list?	Y			Yes, all references in the document are included in the references list. The citations are properly formatted, and every source referenced in the main text is accounted for in the bibliography. The document maintains consistency in citation style and ensures that no sources are missing.
Have you noticed any text in the document not well referenced? (copy and paste of text/picture without including the reference in the reference list)		N		No, I have not noticed any text or images that are not well referenced.
SOCIAL and TECHNICAL RESEARCH WPs (WP4, 5, 12, 13, 14)				
Is the deliverable sufficiently innovative?	Y			The deliverable introduces a structured, AI-supported analysis of misinformation, providing novel insights into its impact and dissemination strategies.
Does the document present technical soundness and its methods are correctly explained?	Y			Yes, the document presents technical soundness, and its methods are correctly explained. The methodology is clearly structured, well-justified, and consistently applied, ensuring reliability. The data collection, thematic categorization, and analysis techniques are transparently documented, making the findings credible and reproducible.

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ELEMENT TO REVIEW	Y	N	NA	COMMENTS
What do you think is the strongest aspect of the deliverable?	Y			The strongest aspect of the deliverable is its comprehensive and structured analysis of misinformation narratives. It effectively integrates AI-driven insights, systematic categorization, and case studies to provide a thorough, evidence-based assessment.
What do you think is the weakest aspect of the deliverable?	Y			No critical weaknesses identified. The deliverable is comprehensive, methodologically sound, and well-structured. Future iterations could enhance impact assessment by including more quantitative metrics on misinformation dissemination and policy influence.
Please perform a brief evaluation and/or validation of the results, if applicable.	Y			The deliverable provides a well-structured and evidence-based analysis of misinformation narratives, ensuring the validity and reliability of its findings. The methodology is clearly defined, utilizing systematic desk research, AI-driven content analysis, and qualitative categorization to track disinformation patterns. The results are well-aligned with existing academic literature, fact-checking reports, and policy discussions, reinforcing their credibility. Furthermore, the deliverable effectively distinguishes between different types of misinformation (intentional disinformation vs. misinterpretations), validating its conclusions with cited sources, case studies, and historical context. The inclusion of real-world examples and cross-referenced insights from the two project domains (climate change,

ELEMENT TO REVIEW	Y	N	NA	COMMENTS
				Ukraine war) strengthens the robustness of the findings. Overall, the results are methodologically sound, thoroughly analyzed, and applicable for future policy recommendations or AI-driven misinformation detection systems. No significant weaknesses were identified, and no further validation is necessary at this stage.
AI AND TECNOLOGICAL WPS (WP6 – WP11)				
Does the document present technical soundness and the methods are correctly explained?	Y			
What do you think is the strongest aspect of the deliverable?	Y			
What do you think is the weakest aspect of the deliverable?	Y			
Please perform a brief evaluation and/or validation of the results, if applicable.	Y			
DISSEMINATION AND EXPLOITATION WPs (WP15 – WP17)				
Does the document present a consistent outreach and exploitation strategy?	Y			
Are the methods and means correctly explained?	Y			
What do you think is the strongest aspect of the deliverable?	Y			
What do you think is the weakest aspect of the deliverable?	Y			
Please perform a brief evaluation and/or validation of the results, if applicable.	Y			

SUGGESTED IMPROVEMENTS

PAGE	SECTION	SUGGESTED IMPROVEMENT
		ADD ROWS AS NECESSARY

CONCLUSION

Mark with X the corresponding line.

	Document accepted, no changes required.

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Please rank this document globally on a scale of 1-5 (1 = poor, 5= excellent) – using a half point scale. Mark with X the corresponding grade.

Document grade	1	1.5	2	2.5	3	3.5	4	4.5	5
								X	