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Get Ratioed: Questioning the Fossil Fuel Industry's Social License to Operate on Twitter

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Article Information	Abstract
	Fossil fuel companies hold immense power to change the climate, impact public perceptions, and influence policy. Revoking their social license to operate is one strategy by which the public may resist harm done by the industry. Social license is built upon establishing legitimacy, credibility, and trust and is something that companies must earn from impacted communities to operate successfully. The current study uses a qualitative content analysis of tweets from fossil fuel organizations, as well as a selection of the replies to those posts, to examine how social media may be used to question these organizations' social license. Results show that replies consistently voice doubts about legitimacy and credibility. Implications for using this strategy in public interest campaigns are discussed.

Introduction

Climate change poses serious threats to many regions around the world (Abatzoglou et al., 2014b). The fossil fuel industry has contributed to climate change by producing products whose use results in greenhouse gas emissions (Griffin, 2017), spreading disinformation about the impacts of fossil fuels and the severity of climate change (Dunlap & McCright, 2011; Franta, 2021; Supran & Oreskes, 2017), and influencing policy to be more favorable to the fossil fuel industry (Karapin, 2020). Public interest issues include topics that have the potential to impact

society's ability to benefit all its members (Fessmann, 2016). As a problem that has the potential to impact the wellbeing of communities across the globe, climate change may be considered a public interest issue (Seyranian, 2017) and public interest communications (PIC) has great potential to fight industry-driven disinformation about climate change (Fessmann, 2018). At the level of both organizational and individual communication, one option for fighting back against the fossil fuel industry's continued contributions to climate change is to revoke its social license (Frumhoff et al., 2015).

Companies need not only legal permission to successfully conduct business, but also the social license—society's acceptance and approval—to operate (Gunningham et al., 2004; Thomson & Boutilier, 2011). Legitimacy, credibility, and trust are key components of social license that must be earned through ongoing relationships with communities impacted by a company's operations (Thomson & Boutilier, 2011). Projects may lose social license if communities perceive them as harmful (Hall et al., 2015) and, in the absence of social license, a project may not be able to continue (Jijelava & Vanclay, 2018, Lyytimäki & Peltonen, 2016). Because communities have the power to grant or revoke social license, this concept gives the public a means to resist threats posed by powerful organizations (Gunster & Neubauer, 2019).

This exploratory study uses qualitative content analysis to examine how users question the fossil fuel industry's social license in response to issues management messages about environmental stewardship on Twitter. Six tweets ($N = 6$) from fossil fuel companies and a trade association, as well as a selection of replies ($N = 444$) to those posts, are examined through the lens of social license to pinpoint strategies for targeting legitimacy and credibility. Findings show that users frequently discuss these integral components of social license. Implications for this kind of social media communication as a potential tool for public interest campaigns are discussed.

Literature review

Impacts of the fossil fuel industry

Burning fossil fuels releases carbon dioxide into the atmosphere, which contributes to climate change (Abatzoglou et al., 2014a). Climate change, in turn, leads to rising temperatures, more frequent extreme weather events, negative effects on agricultural yields in some areas, more severe droughts for certain regions, and rising sea levels that will have negative impacts "for both human and natural systems" (Abatzoglou et al., 2014b, p. 92). The fossil fuel industry bears a great deal of responsibility for climate change. According to a 2017 report created in partnership with the Climate Accountability Institute, CDP (formerly the Carbon Disclosure Project) estimated that 71% of industrial greenhouse gas emissions could be linked to just 100 fossil fuel producing companies (Griffin, 2017).

Beyond simply producing these planet-warming fuels, however, the industry also has influenced policy and spread disinformation to encourage continued reliance on fossil fuels. In

1980, a publication from the American Petroleum Institute suggested that scientists at the time did not hold serious concern for climate change and believed, despite industry knowledge to the contrary, that burning fossil fuels would not be harmful (Franta, 2021). Companies such as Exxon have since sowed doubt among the public about the reality of climate change and the role that fossil fuels played in it by publishing advertisements styled as editorials in *The New York Times* (Supran & Oreskes, 2017). Meanwhile, research funded by Exxon and internal documents demonstrated that the company knew that climate change was occurring and was severe (Supran & Oreskes, 2017). Other companies also supported climate change denial through campaigns, front groups, and work with think tanks (Dunlap & McCright, 2011).

Furthermore, despite British Petroleum's CEO publicly acknowledging scientific consensus on anthropogenic climate change in 1997, many fossil fuel companies spent the subsequent decades pushing against climate-friendly legislation and funding groups that worked to confuse the public about climate change (Frumhoff et al., 2015). Finally, a report from the Union of Concerned Scientists reviewed 85 documents from fossil fuel companies and trade associations that showed that the industry had funded research and strategized to work with scientists to call into question the role humans play in climate change and created organizations designed to look like grassroots efforts to oppose environmentally friendly policies (Mulvey et al., 2015).

Disinformation, the encouragement of uncertainty, and denial not only have the capacity to impact members of the public, but also policymakers (Dunlap & McCright, 2011; Franta, 2021; Supran & Oreskes, 2017). Additionally, the fossil fuel industry discouraged lawmakers in the United States from regulating carbon dioxide emissions, joining climate commitments, and making policies that support renewable energy (Karapin, 2020). These dishonest communications are in direct opposition to principles of ethical public relations, which include companies transparently sharing information and disclosing their role in campaigns (Plaisance, 2014) as well as ethical PIC, which demands endorsement only of scientifically sound solutions to public interest issues (Fessmann, 2017).

Considering that the fossil fuel industry sells products that contribute to climate change, spreads disinformation about the impacts of its activities and the reality of climate change, and influences policymakers to benefit the industry at the expense of climate action, it seems that fossil fuel companies have the power to do great harm to society. Frumhoff et al. (2015) suggest that revoking the social license of fossil fuel companies is one way to help prevent the damage they can do.

Social license

Social license, also referred to as social license to operate, means "the demands on and expectations for a business enterprise that emerge from neighborhoods, environmental groups, community members, and other elements of the surrounding civil society" (Gunningham et al., 2004, p. 308). These demands often go above and beyond the law, pressuring companies to engage in actions that are not legally required to maintain a certain level of approval among the

public, such as sourcing materials responsibly or responding to consumer concerns about the health impacts of products (Gunningham et al., 2004). The term was initially used in the context of the mining industry and meant that earning community acceptance was often comparable in importance to gaining legal approval to ensure a project's success (Cooney, 2017). Since then, social license has become a broadly adopted concept in industries such as aquaculture (Baines & Edwards, 2018), hydroelectric power (Jijelava & Vanclay, 2018), fossil fuels (Curran, 2017), hunting (Darimont et al., 2020), and tourism (Schweinsberg et al., 2020).

Legitimacy, credibility, and trust are key components of social license that build off one another (Thomson & Boutilier, 2011). Upon establishing legitimacy, a company, industry, or project gains basic acceptance; later, once credibility is earned, a project may earn community approval; finally, this is followed by trust (Thomson & Boutilier, 2011). At an organizational level, gaining legitimacy means that the public views an organization's actions as "desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995, p. 574). To continue to operate, organizations must maintain legitimacy and do work in a way that meets society's standards of acceptability (Deegan, 2002). At a project level, legitimacy involves showing that a project is following laws, treating affected people fairly, providing benefits to society, and offering the opportunity for members of the public to be meaningfully involved in a transparent decision-making process (Jijelava & Vanclay, 2018; Smits et al., 2017). Corporate credibility may be considered "the extent to which consumers feel that the firm has the knowledge or ability to fulfill its claims and whether the firm can be trusted to tell the truth" (Newell & Goldsmith, 2001, p. 235). Credibility is established when a company can communicate reliable, digestible information and acts accordingly (Baines & Edwards, 2018, Jijelava & Vanclay, 2018).

Finally, trust can be considered "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor" (Mayer et al., 1995, p. 712). Within Thomson and Boutilier's (2011) conceptualization of social license, trust comes because of legitimacy and credibility when community members feel able to play the role of active partners in a project and can rely on a company to act in a way that consistently benefits them (Hall et al., 2015; Jijelava & Vanclay, 2018; Thomson & Boutilier, 2011). Although there is some overlap of these concepts in the literature, for the purposes of this paper, legitimacy will refer to the idea that people accept that a project or industry is legal, beneficial, and offers basic consideration to affected communities; credibility will refer to the dependable communication of accurate information, consistent treatment of stakeholders, and cohesion between communication and action; and trust will be considered the ability of stakeholders to view themselves as partners in a company's work.

Social license is something that must be earned (Hall et al., 2015), which can only be achieved through an ongoing process of engagement (Eabrasu et al., 2021). While seeking to gain social license for a project, companies may hire staff whose job it is to interact with impacted community members (Smits et al., 2017), compensate anyone who might need to be relocated (Eabrasu et al., 2021; Jijelava & Vanclay, 2018), offer community members the

opportunity to serve on committees related to a project (Eabrasu et al., 2021), or provide clear information about project plans to anyone in the community who would like to learn more (Hall et al., 2015). Meanwhile, for an established project, ongoing communication, providing avenues for community members to make their issues related to the company known and responding to those problems in a meaningful way are all key strategies for maintaining social license (Baines & Edwards, 2018). Additionally, using social media to interact with stakeholders and provide helpful information can be important in supporting social license (Howard, 2020). Consistent in the literature is the idea that companies must be transparent, honest, and responsive in their communication and community engagement if they are to have any hope of gaining and keeping social license.

If a company's work seems to pose a risk to a community, social license may be lost quickly (Hall et al., 2015). Threats that might cause communities to question social license for a company or activity include dangers to a local economy or landscape (Lyytimäki & Peltonen, 2016), risks to a community's way of life (Jijelava & Vanclay, 2018), a mismatch between an activity and community norms or values (Darimont et al., 2020), or industry contributions to global issues, such as climate change (Schweinsberg et al., 2020). As discussed in the previous section, the fossil fuel industry is responsible for producing materials that contribute to climate change. Furthermore, the industry has spent decades misleading the public about climate change and discouraging policymakers from passing strong climate policies. These actions certainly pose risks to society, and it would be reasonable for the public to question the industry's social license in response to this behavior.

From the company perspective, organizations may make the mistake of viewing social license as a box to be checked by engaging in the bare minimum, legally required level of community engagement before a project (Curran, 2017). However, from the community perspective, social license is a valuable resource and revoking it can be a powerful way to protect community interests (Gunster & Neubauer, 2019). A lack of social license can cause the legal license of a company's activities to come into question (Curran, 2017) or halt a project altogether (Jijelava & Vanclay, 2018, Lyytimäki & Peltonen, 2016). Furthermore, stakeholder theory underscores the idea that business success depends on consideration of all groups (stakeholders) that may be impacted by the work of an organization or that could impact the work of an organization, including communities that could be harmed by byproducts of an industrial process (Freeman et al., 2012). Businesses should create value rather than harm their stakeholder groups so that these groups, in turn, may help a business thrive (Freeman et al., 2012).

Understanding social license not as something that can be gained through minimal corporate effort, but instead as a valuable resource that stakeholders can take away has "radical, counter-hegemonic potential" (Gunster & Neubauer, 2019, p. 708). To question social license, individuals may protest in person or through media (Hanna et al., 2016). Additionally, Durham and Kellner (2012) note that the Internet "can aid progressive political struggles and movements" (p. 21) as they resist hegemony.

Online activism

The Internet has provided a plethora of possibilities for activism and, although some may deride online activism as slacktivism (Hanna et al., 2016), critical comments on social media can play a significant role in undermining the social license of a project, company, or industry if community members view it as undesirable (Darimont et al., 2020; Robinson et al., 2020; Smith et al., 2017). Hanna et al. (2016) compiled an impressive glossary of activism strategies that includes several activities applicable to online and social media settings, such as sharing satirical memes, "naming and shaming" (p. 229) guilty companies or individuals, communicating insults through political satire, tweeting about an issue, creating fake websites, sharing protest event information online, and hacking an organization's website. For some organizations involved in grassroots activism, online actions may be the most common kind of activity that their stakeholders engage in (Han et al., 2017), while for others the Internet can be a useful tool for mobilizing action on an issue (Şen & Şen, 2016).

Individuals and organizations have relied on social media to protest and raise awareness about topics, such as mistreatment of animals (Wonneberger et al., 2020), fracking (Larri & Whitehouse, 2019), climate change (Boulianne et al., 2020), and toxic waste (Kaur, 2014). Hanna et al. (2016) contend that social media protests have the potential to influence mass media and public opinion and that protests can shape broader social media conversation. Protests publicized through social media, such as Greta Thunberg's School Strike 4 Climate, can spark a global movement because social media are an excellent way to spread awareness and connect distant local events under the umbrella of a common cause (Boulianne et al., 2020). Beyond promoting formal protest, social media democratize the opportunity for the public to demand accountability in the face of unethical behavior (Neu et al., 2019).

Simply posting critical responses to an organization's online content or campaign can spark a serious conversation and potentially encourage change. Large numbers of comments expressing concern over ingredients in Kraft's macaroni and cheese, encouraged by an activist, garnered media attention and may have contributed to the company removing specific dyes from its product (Veil et al., 2015). Meanwhile, negative comments can gain attention of other users, causing both the original content and critical discourse to spread (Amezcua & Quintanilla, 2016) or lead to petitions and an overflow of conversation to multiple social media platforms (Kirkwood et al., 2019).

Whether it is used as the sole venue for activism or as a steppingstone toward in-person action, social media can play an important role in facilitating critical conversation, protest, and activism, which in turn function as important methods for calling social license into question. While some studies of social license consider individual projects (Curran, 2017; Jijelava & Vanclay, 2018; Lyytimäki & Peltonen, 2016), other scholars have investigated social license at the industry level (Baines & Edwards, 2018; Schweinsberg et al., 2020).

The current research specifically considers tweets to investigate how members of the public can use social media to question the fossil fuel industry's social license. Specifically, the following research questions will be addressed:

RQ1: What are the characteristics of tweets from fossil fuel organizations that provoke negative responses from Twitter users?

RQ2: How do Twitter users react to tweets from fossil fuel organizations that they find to be upsetting, inappropriate, disingenuous, or offensive?

RQ3: How do these reactions target the organization's social license, specifically their legitimacy, credibility, and trustworthiness?

Method

To narrow the range of tweets to be examined, only tweets that had been ratioed were considered. Getting ratioed may mean that: a) a tweet received more replies than retweets (O'Connor & Shumate, 2018); b) a post garnered many negative comments (Chapman, 2019); or c) a post received more dislikes than likes (Larabee, 2020). For the purposes of this paper, a tweet was considered to have been ratioed if it had more replies than likes. Generally, a ratioed tweet is a sign that an account has posted something offensive or insensitive, as people use comments and replies to express their dissatisfaction in greater numbers than those who show approval via likes.

Because the focus of this research is on negative reactions to fossil fuel organizations, it was appropriate to seek out tweets that drew large numbers of likely negative comments. Tweets posted between April 2020 and April 2021 from Shell, Chevron, BP, Exxon, Conoco Phillips, and the American Petroleum Institute (API) were considered, as these are all large organizations with an active Twitter presence that frequently receive engagement from users. Other prominent organizations from the fossil fuel industry were considered but either did not have a Twitter account, did not post frequently, or did not frequently receive more than a small number of likes or replies. One tweet from each organization was selected to ensure that a single organization did not have a disproportionate influence on the results. A total of six tweets ($N = 6$) and up to the first 100 replies directly to those tweets ($N = 444$) were collected during April 2021. Please see Table 1 for a description of all the main tweets along with the number of likes, retweets, quote tweets, and replies they received.

Table 1

Original tweets

Account	Date Posted	Tweet Text	Likes	Replies	Retweets	Quote Tweets
APIenergy	3-23-21	"Reining in climate change requires many solutions. Declaring who cannot be part of those, such as natural gas companies, only raises resistance to progress." Via @sciam [link to an article titled "Can Natural Gas Be Part of a Low-Carbon Future?"]	12	110	2	35
bp_plc	3-17-21	This great @NYtimes piece explains the barriers to the mass roll-out of EV's. By joining forces with businesses like @VWGroup we hope to accelerate the introduction of ultra-fast EV charging across Europe & the rest of the world [earth emoji] [plug emoji] [link to article titled: Electric Cars Are Coming. How Long Until They Rule the Road?]	15	29	7	6
Chevron	3-9-21	We all have a role to play in creating a cleaner future. At Chevron, we're lowering the carbon emissions intensity of our operations, investing in lower-carbon technologies and exploring renewable fuels of the future. Learn more: http://chevron.com/lowercarbon #HumanEnergy [black and white video about how Chevron is reducing their carbon emissions]	81	708	25	216
conocophillips	1-6-21	An iconic live oak tree in the town of Kenedy, Texas home of the company's Eagle Ford headquarters. The liquids-rich Eagle Ford tight oil trend represents the company's most prolific unconventional resource development. Learn more: https://bit.ly/38bnfkY [picture of a live oak tree at sunset]	8	15	1	2
exxonmobil	12-3-20	We're all in this together! Glad to be a part of the Oil and Gas Climate Initiative – working collaboratively toward solutions to mitigate the risks of climate change. @OGCInews [quote tweet from OCGInews that reads "We've launched our 2020 Progress Report [earth emoji] Using the collective power of OGCI's member companies, we've driven change across four key areas: [graphic which reads "Delivering on a low carbon future"]]	245	2,344	43	1,741
Shell	11-2-20	[Bar chart emoji] What are you willing to change to help reduce emissions? #EnergyDebate [poll options: Offset emissions (23.1%), Stop flying (6.5%), Buy electric vehicle (25.6%), renewable energy (44.7%) 199 votes total]	1,036	7,051	210	7,861

All the tweets selected for analysis in this study happened to be issue management messages, which means they were intended to illustrate an organizational stance on a topic in a way that aligns with stakeholder expectations (Heath, 2013). In the case of these tweets, they all seem to strive to show that these companies are involved in sustainability or environmental stewardship. Considering this specific pool of tweets and their narrow topical focus, the current study may be considered exploratory in nature, shedding light on reactions specifically to issues management messages and the possible implications for organizations' social license in response to those particular kinds of tweets.

Only the first 100 replies to each tweet were collected, and responses to those replies were not collected. Limiting the number of replies analyzed per tweet prevents one tweet that received many replies from having too large of an impact on the research conclusions (Declercq et al., 2019). In cases where a tweet received less than 100 replies, all replies were collected. For each tweet, the text of the tweet was pasted into an Excel sheet and the date, author, url, a description of any media associated with the tweet, and the number of likes, retweets, quote tweets, and replies were added to the Excel document as well. Twitter did not display an exact number of replies once the replies surpassed a certain number (e.g., Exxon's tweet showed as having 2.3k replies). To determine the exact number of replies that tweets got, tweet data were collected from the Twitter API using a program called Postman. Meanwhile, for the replies, the text of each reply was pasted into the same Excel document and the date, author, url, a description of any media associated with the reply, and the number of likes, retweets, and replies also were recorded.

Tweets and replies were qualitatively analyzed using multiple rounds of coding to identify common themes and relate them to components of social license following an iterative phronetic approach (Tracy, 2020). To begin, a round of initial coding was done to identify distinct kinds of negative replies from Twitter users, such as accusing a company of lying or causing harm, along with any additional notes on tone or argument strategy, such as use of humor or linking to an article for support. After this initial round of coding, different kinds of replies and strategies were organized under the umbrellas of legitimacy and credibility in a chart. Strategies were duplicated where needed to fit under multiple categories. Strategies were considered to target legitimacy if they related to the idea that company actions did not benefit the public, the organization actively harmed certain stakeholders, or that the company had failed to gain a baseline level of acceptance from the public. Meanwhile, strategies were deemed relevant to credibility if they demonstrated that users perceived a lack of reliable or transparent communication or an absence of care for stakeholder opinions. Next, larger themes relevant to the ideas of legitimacy and credibility were identified that related to the kinds of replies users wrote. These included a general lack of acceptance, perceived disregard for stakeholder's opinions, accusations of harm done to the public by the organization, calling out concealment of information or the spread of disinformation, perceptions that the organization's tweet was disingenuous, and accusations of lying. Once these themes were identified, a final round of coding was done to fit negative replies under one of those six categories.

Results

All the tweets identified for this study had been ratioed, meaning they received more replies than likes. A common thread among most of these tweets was the suggestion that these organizations valued the environment. Conoco Phillips expressed appreciation for a live oak tree, API asserted that natural gas companies could help address climate change, Exxon showcased a larger industry initiative to combat climate change, BP highlighted its connection to more environmentally friendly electric vehicles, and Chevron wrote about its contribution toward a cleaner future. Additionally, Shell, Chevron, and Exxon all used inclusive plural pronouns that suggested consumers bear responsibility for climate change alongside companies by using phrases, such as "We're all in this together!" and "We all have a role to play" and asking the members of the general public what actions they could take to care for the environment. The ire these tweets provoked suggests that people viewed these sentiments as insulting, upsetting, and hypocritical as organizations whose primary activities harm the environment tried to reassure the public that they cared about environmental stewardship and wanted to encourage the public to help clean up the industry's mess. Replies to these tweets undermined the organization's legitimacy and credibility to the extent that it seems that real trust may never have been gained at all among some stakeholder groups. A lack of established legitimacy and credibility was apparent in replies calling out harmful industry actions, criticizing disingenuous statements, highlighting a history of deceptive communication, pointing out ways the organizations disregard public opinion, and questioning organizations' honesty and integrity.

Before delving into a closer examination of these themes, it is worth noting that many replies received more likes or retweets than the organizations' original tweets. Moreover, most replies collected for this research were negative or hostile toward the original poster (e.g., "On behalf of future generations, Bite me."). The high levels of attention received by such critical replies demonstrates that some critiques of the organizations garnered more public support than the organizations' original messages and that some criticisms also were spread more widely than the original tweets. If critique is more widespread than agreement for these messages, it seems that attacks on organizations' social license via social media could have the potential to negatively impact the organizations' brand image and public support.

Questioning legitimacy

Harm done to the public

A key aspect of legitimacy is demonstrating that a project or industry is beneficial (Jijelava & Vanclay, 2018). The main strategy that users adopted to question fossil fuel organizations' legitimacy was to highlight public harm that the corporations and trade association had done. By calling out harm done by these organizations, social media users clearly showed that they did not believe these groups were beneficial, but rather dangerous to at least some stakeholders.

The first way that users demonstrated harm was by referencing corporate crises, such as oil spills. For example, one user told Shell to "Clean up your mess in the Niger Delta and North Sea" and another declared, in response to Chevron, "You won't have my attention until you act responsibly & ethically to clean up disasters, such as oil pollution in the Ecuadorian Amazon (& elsewhere)." Meanwhile, in reply to BP's tweet, one user said, "I pledge not to spill 4.9 million barrels of oil in the gulf of mexico and refuse to clean it up because there is no current law or regulation that would force me to clean it up." These clear reminders of specific instances of environmental harm by oil companies served as examples of how these organizations have caused great harm to the public and natural environments in the past.

Beyond examples of particular harmful corporate crises, other users chose to remind organizations that they were causing damage at a broader scale by contributing to climate change and environmental degradation, such as, "You make absurd claims about co2 emissions reduction while emitting absolutely massive and underrated amounts of methane directly into the atmosphere, accelerating climate change," a cartoon that showed people huddled around a campfire with a caption that read, "Yes, the planet got destroyed. But for a beautiful moment in time we created a lot of value for shareholders," or one reply targeted at Conoco Phillips that stated, "Y'all like trees? Stop drilling and start planting those. Y'all know how many live oaks we lose when you lay your pipelines?" Replies such as these emphasize how organizations' day-to-day operations harm the environment that people depend on for a healthy future.

In addition to harm done through environmental damage, many users were also quick to point out harm done to individuals opposed to fossil fuel projects. At times, this harm took the form of violence, such as one user's accusation that Shell was involved in the "murder [of] activists in the Global South" and another reply that suggested Shell was responsible for the murder of "the Ogoni 9" and provided a link to a Wikipedia page about the group in case other users wanted to "read about Shell's involvement in killing them." Another situation that many users referenced by quoting relevant tweets in replies to Chevron was the house arrest of Steven Donziger, a lawyer involved in a case against Chevron on behalf of indigenous people and farmers in South America (North, 2020). These replies drew attention to how organizations have hurt some of the people who attempt to oppose their activities.

Finally, the last main type of reply in this category suggested harm not by citing specific examples of organizational actions or connecting operations to larger environmental problems, but instead by comparing the fossil fuel industry to other kinds of dangerous industries or individuals. A common comparison was made between these organizations and tobacco companies, illustrated by replies such as, "Hey Chevron Comms people! Fossil fuels are the new tobacco." Other users compared these organizations to pedophiles and arsonists. Through such comparisons, users depicted these organizations as harmful and dangerous.

General lack of acceptance

Achieving acceptance is an initial threshold for gaining social license (Thomson & Boutilier, 2011). Users expressed a general lack of acceptance for organizations through insults and

mockery, threats of violence, and suggestions that companies cease their operations. Multiple users replied to Exxon with an image of SpongeBob dressed as a police officer looking around suspiciously near a wanted poster with a drawing of him on it, implying that the company could not recognize that they had done something wrong. A similar humorous image, depicting a man dressed as a hot dog with text that read, "We're all trying to find the guy who did this," was used in reply to API, Exxon, Chevron, and Shell. Other insults were also present in the form of a variety of text, images, and gifs.

Another way users expressed that they did not accept these organizations was through threats of violence, with gifs of guillotines posted in response to Shell and Exxon. Additionally, one user told Exxon to "chew glass and drink saltwater." Although these replies are somewhat disturbing, they do demonstrate a great deal of hostility toward these organizations.

Finally, many users expressed their lack of acceptance by suggesting that they would like companies to cease current operations or existence. Multiple users told Conoco Phillips to stop drilling, one suggested that Chevron "immediately halt investments in fossil fuels, and direct all funds to green solutions," and another said it would be "neat and fun" if Exxon stopped "harvesting fossil fuels entirely and immediately." In addition to users suggesting that these organizations dramatically alter what they do, some suggested that these organizations should not exist at all. One user suggested that "nationalizing and dismantling shell" would be desirable, while another felt that they would like Chevron to consider "shutting down and giving all your money to the renewables industry." These sentiments illustrate users' failure to accept both some organizations' existence as well as the work they do.

Undermining credibility

Disinformation

Credibility relies upon open, reliable communication (Jijelava & Vanclay, 2018). Many replies undermined organizations' credibility by suggesting that the fossil fuel industry has been actively involved in spreading disinformation. Some replies featured accusations such as, "How dare you further confuse and mislead?" and demanded that these organizations "Educate the public about the fossil fuel industry's decades-long effort to spread doubt about the deadly climate consequences of its products to preserve profits." Additionally, quite a few replies included links to or screenshots of articles with titles such as, "Exxon Knew about Climate Change almost 40 years ago" and "Oil firms knew decades ago fossil fuels posed grave health risks, files reveal." Using these accusations and examples, users made it clear that they did not believe these organizations could be relied upon to share accurate information or be transparent.

Disingenuous sentiments

In addition to accusations of disinformation campaigns, users also left replies that suggested they simply did not find the organizations' statements to be genuine or believable. The first method

for questioning the believability of organizations' statements involved users writing their own versions of the main tweets, such as one revision of Chevron's tweet that read, "We, as in Chevron, have an immense role to play in a clean future because we created this mess. At Chevron, we're responsible for delaying climate action. No apology we can give is necessary, but we're done green washing and are ready for truth and reconciliation." One user's interpretation of API's tweet read, "Reining in climate change requires many solutions, including solutions that don't reign in climate change, and in fact make it worse," while another stated, "Reining in rabid 500lb gorillas requires many solutions. Declaring who cannot be part of those, such as companies that release rabid 500lb gorillas, only raises resistance to progress." These rewordings occasionally overlapped with comparisons to harmful individuals or industries, a strategy for insinuating harm defined in the previous section. If rewrites of tweets compared the fossil fuel company to a harmful actor, such as the tobacco industry, those replies were not included in this category.

Other users chose not to write their own version of the entire tweet but instead singled out specific phrases or aspects of the media associated with the tweets that they found problematic. One user pointed out that Chevron has made "billions upon billions from that pollution without paying anything for the cost of it" and wondered, "What 'role' should we 'all' play compared to you?" Meanwhile, another reply informed Exxon that "we will be 'in this together' when y'all stop unearthing carbon, destroying the future, and redistribute your billions to folks who actually know how to solve the mess you've made." Finally, a user told Shell that it had "left 'Completely revamp our infrastructure and society so we can put the oil industry behind us' out of the poll." Both strategies, rewriting tweets and pointing out problems with specific words and media, undermined credibility by casting doubt on whether these organizations' communication can be taken as genuine. By focusing on particular issues with tweets' wording and media choices, these replies demonstrate that many users found the organizations' sentiments disingenuous.

Accusations of lying

Similar to pointing out disingenuous statements, but distinct due to a lack of specificity, were general accusations that an organization was lying. Although these replies did not call out specific words or phrases, they did charge organizations with dishonesty. One user felt that Shell "put the gas in gaslighting." Meanwhile, multiple users accused Chevron and BP of greenwashing either through written replies or through media, such as a gif of a man painting the inside of his car green. Others expressed a belief that API, Chevron, and Exxon were lying either by outright saying it, such as one gif that read, "The lie detector determined that was a lie," or through stating that the organizations' claims were "bullshit." These claims did not question specific wording as did the accusations of disingenuous statements, nor did they make detailed assertions about the company hiding information as did the accusations of disinformation. However, these replies clearly showed that many users did not find the original tweets believable or credible.

Disregard for some stakeholders

For stakeholders to see an organization as credible, they must feel that stakeholders are treated consistently (Thomson & Boutilier, 2011). Some of the organizations considered in this study demonstrated very clearly that they did not care for some of their stakeholders' thoughts by hiding replies. Many users noticed Shell hiding specific replies and posted screenshots of them with captions such as, "Why are you hiding this reply? Is that an inconvenient truth?" Other users noted the overall phenomenon of hidden replies, saying that they "love the hidden replies feature. should be renamed 'good tweets section'," again accompanying these sentiments with screenshots of hidden replies or showing where other users could click to view them. Meanwhile, a user noted that Chevron was "hiding every reply that has a swear in it like cursing is the issue here." Not all organizations engaged in hiding replies, but those that did were certainly noticed by users.

Discussion

Many of the Twitter replies considered in this study actively questioned and undermined organizations' legitimacy and credibility in response to issues management messaging. In the absence of these components of social license, trust cannot be established (Thomson & Boutilier, 2011), suggesting that these organizations failed to gain many people's trust. Although it may be tempting to dismiss the opinions of Twitter users because they have little direct influence on companies' operations, Beckman et al. (2016) point out that even low-power stakeholders might be negatively impacted by an organization's damage to the environment and therefore should be considered salient to maintain a good reputation and social license. Moreover, Thomson and Boutilier (2011) assert that anyone who is impacted by or who can impact a project should be considered a stakeholder. In the case of the fossil fuel industry, companies and trade associations shape national policies as well as the global climate, therefore affecting billions of people and broadening the definition of stakeholder to include these users on Twitter.

Social media can help facilitate global protest movements (Boulianne et al., 2020), raise awareness about problematic corporate practices (Larri & Whitehouse, 2019; Wonneberger et al., 2020), provide a platform to demand change from organizations (Veil et al., 2015), and spread calls to boycott organizations that have acted unethically (Makarem & Jae, 2016). In the sample examined here, negative replies greatly outnumbered positive replies and were, at times, retweeted or liked more than organizations' original tweets. Therefore, it seems that users had the ability to steer the conversation attached to a post away from the organization's intended focus, thus impacting how others think about these companies and their work. This redirection of focus fits the concept of social media hijacking, or using comments on social media to take over a post and emphasize user concerns (Veil et al., 2015). Considering the negative effects that the fossil fuel industry could have on many stakeholders, the serious ramifications of negative online comments, and the relative ease with which social media hijacking could be used as an activist

strategy, it is worth considering the implications of this kind of discourse for the fossil fuel industry, individuals seeking activism opportunities, and organizers of public interest campaigns.

In the wake of concern and criticism on social media, companies have changed ingredients in their products (Veil et al., 2015), groups have proposed policy changes that would alter industries (Mummery & Rodan, 2019), politicians have requested that major projects be relocated (Valenzuela et al., 2012), stock prices have fallen for certain companies (Gomez-Carrasco & Michelon, 2017), and thousands have expressed interest in supporting boycotts of brands (Kang, 2012). Some of these examples (Mummery & Rodan, 2019; Valenzuela et al., 2012) involved offline action in conjunction with online protest, but research has linked online political activity to participation in offline actions, such as protest (Vissers & Stolle, 2014), suggesting that even if change did not come about due solely to online actions, engagement in online protest can spark future engagement among users. If user responses on social media can contribute to serious impacts on manufacturing processes, policy proposals, project locations, stock values, and interest in boycotts, it is possible that mobilizing social media users to publicly voice their concerns about the fossil fuel industry's impact on people and the environment could lead to important changes in these organizations.

Although there were a handful of positive or neutral replies in many of the Twitter conversations examined in this study, the vast majority were negative and directly questioned organizations' legitimacy and credibility, key components of social license. Gunster and Neubauer (2019) argued that foundational to the concept of social license is the idea that governments have failed to protect their citizens from powerful corporations and that people can wield social license as a counterhegemonic tool to protect individual and community interests. It seems that people may be using social media to do just that. The replies examined in this research suggest that users did not view social license as "little more than a public relations tactic" (Gunster & Neubauer, 2019, p. 722). Rather, they seemed to view social license as something necessary that, when not earned, evoked public expressions of anger and accusations of harm. Replies called out industry wrongdoings and demanded changes and transparency, even expressing desires for radical solutions, such as doing away with some of these companies altogether.

The strong disapproval of companies, the sentiment in some replies that these companies perhaps ought to cease operations, and the accusations of lying and harm at organizational scales suggest that the fossil fuel industry faces a lack of social license at an industry-wide scale among some stakeholders. While social license initially has often been considered a prerequisite for a particular project to take place (Thomson & Boutilier, 2011), the idea also can apply to an entire industry (Hall et al., 2015). At this point, it may not be sufficient for fossil fuel companies to earn social license on a project-by-project basis; social license for their entire operation may be in jeopardy.

Further research on the kinds of negative online responses to fossil fuel organizations that are covered in this paper could be of interest to scholars doing work related to the Situational Theory of Problem Solving (STOPS), which seeks to shed light on which factors lead people to

take communicative action in response to a problem (Kim & J. E. Grunig, 2011). Although some research has applied this model to social media activism (Chon & Park, 2020), there is still an opportunity for more research surrounding the motivations for engaging in social media activism around environmental topics. Additionally, many of the replies examined in the current study expressed frustration or anger, so it could be worthwhile to examine social media activism related to the fossil fuel industry through the lens of the Anger Activism Model (AAM), which suggests that individuals' varying degrees of anger and efficacy beliefs can result in different activism outcomes (Turner, 2007).

Practically, using social media as a tool to question social license could be considered as a means for both individuals and organizations to engage in activism. Public interest campaigns, which take a society-wide view of an issue and aim to promote behavioral change (Fessmann, 2017), could benefit from incorporating this tactic into campaigns as a facet of their strategy or an end goal for behavior change. Encouraging people to publicly question the social license of organizations that contribute to climate change could offer a feasible first step into activism for some users while also drawing attention to campaigns. Should public interest campaigns choose to go this route, it could be beneficial to pair this strategy with other forms of communication that do not focus solely on social media comments. For example, while exploring backlash to the idea of clean coal on Twitter, Demetrious (2019) found that although many replies were clever and critical, replies offered only a shallow discussion of a complex issue, ignoring the negative impacts that the decline of the coal industry could have on people working in the industry. The current study also found an abundance of strong critiques deploying humor and unnuanced arguments; although these comments offer a potentially useful strategy for attracting attention to the topic and engaging users in activism, this sort of dialogue likely should not be where the conversation ends for an organized PIC campaign.

This study had a limited focus on a selection of ratioed tweets to understand strong reactions to content posted by fossil fuel companies and trade associations. These conversations were very negative, with very few positive or neutral replies out of hundreds. Although the replies examined here provide valuable insight into how users express disapproval of the fossil fuel industry, they cannot be considered representative of typical interactions with the fossil fuel industry on Twitter. Furthermore, the original organization tweets included in this study may be considered issues management communication, messages intended to express an organization's position on an issue while meeting stakeholder expectations and strengthening relationships with stakeholders (Heath, 2013). Organizations engage in issues management to maintain legitimacy or to bridge legitimacy gaps—that is, differences between stakeholder expectations and perceptions of organizations' actions (Heath & Palenchar, 2009).

To understand whether the sentiments found in this study are consistent across other Twitter conversations, a more extensive content analysis would need to be conducted that included tweets outside the realm of issues management. Additionally, aside from considering likes and retweets of replies, this study was not able to assess the impacts that these negative replies had. Future research could be conducted to understand how replies that call into question a company

or industry's social license might impact things, such as consumer trust, brand image, policy support, or individual purchasing behavior or purchase intentions. Furthermore, future research could take an experimental approach to examine whether seeing negative responses to companies online impact social media users' perceptions of social license and posting behavior or intention.

Replies to fossil fuel organizations' tweets demonstrated clear threats to legitimacy and credibility through accusations of harm, charges of disinformation and dishonesty, and lack of acceptance. Some of these replies garnered just as much attention, if not more, than the original tweets and presented avenues for individuals to express displeasure with a powerful industry. These replies suggest that, beyond specific projects, the entire industry may be at risk of losing social license among some stakeholders. Such a threat to social license would ideally not be met by shiny ad campaigns or rebranding schemes. Instead, this broad threat to social license should be seen as a wake-up call to the industry that many stakeholders are unwilling to accept disinformation and environmental harm and that something must radically change so that vulnerable communities and ecosystems can be protected now and in decades to come. Public interest campaigns can encourage continued user engagement in questioning social license on social media to strengthen this demand for change. Replies to tweets alone certainly will not revolutionize the fossil fuel industry, but these replies offer an accessible, public platform for people to express their concerns. This sort of online activism is a method that both individuals and organizations may promote to chip away at a harmful industry's social license and spark broader conversations and action.

Acknowledgements

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