USING CORPUS LINGUISTICS TO ANALYZE BIG OIL COMPANIES' TWITTER DISCOURSE ABOUT THE FUTURE

Abstract: Using critical discourse analysis and corpus linguistic methods, this research examined 508,894 words on the Twitter pages of two Big Oil companies in the US and Europe, Chevron and BP. The initial results showed that (1) BP's Twitter generally mentioned the future more and more concern about future than Chevron on their Tweets, (2) Chevron seems to be more inclusive and proactive in mentioning the future on social media, and (3) both companies paid attention to legitimizing their critical-but-controversial business operation by mentioning future and its contextual language on their social media.

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INTRODUCTION

According to Driving Sustainable Economies, 100 fossil fuel producers are responsible for 71% of the world's greenhouse gas emissions. From denying the existence of climate change and strongly opposing climate regulation, the multinational oil and gas companies have gradually changed their environmental policies and positions on climate change. While climate change is a long-term issue, discourse about "the future" might reveal the industry's perceptions and strategies regarding climate change and their policies to address this global crisis. This research aims to examine the discourse about the future in the two corpora from the Twitter pages of Chevron and BP. The study uses discourse analysis to (1) explore how such companies construct and disseminate ideologically specific representations regarding the future and (2) which specific ways they use language to enact power and social domination.

RESEARCH QUESTIONS

RQ1: To what extent did the two big oil companies mention "future" on their tweets?

RQ 2: What are the frequent topics of, issues discussed in, or actors involved in tweets relating to "future"?

RQ3: What are the differences in the discourse of Chevron and BP reflecting the stance toward "future"?

METHOD

This research uses Corpus linguistic approach to explore the *keywords and frequency list*, *collocations,* and *concordances* around the term "future" in two corpora BP's Twitter (*278, 543* words) and Chevron's one (*230, 351 words*).

- ***Sketch Engine was employed to explore keywords.***
- ***LancsBox was used for collocation and concordance research.***
- ***Manual analysis was utilized to interpret the data context.***

RESULTS

BP is more likely to use the word "future" than Chevron in its Twitter posts. Z-scores were computed for the raw score and showed that the difference between BP and Chevron's corpora is significant, *z= -6.59, p= <0.0001.*

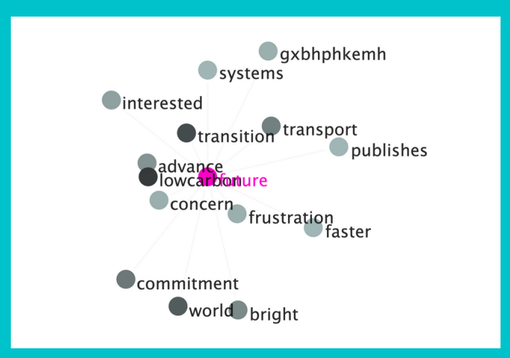
In the BP corpus, *"low" or "lower," "bright," "sustainable," and "low-carbon"* are the most collocated words with *"future."* The verbs with "future" as a subject are most often *"provide," "contain," "energise," "sit," and "be."* The verbs with "future" as an object are most often *"advance," "shape," "drive," "discuss," "think," "predict," "build," "affect," "change," and "be."*

In the Chevron corpus, *"low carbon," "bright," "energy," "clean," "good," "sustainable," and "economic"* are among the most common modifiers of "future." The verbs with "future" as the subject are most often *"provide," "hold," "depend," and "be."* The verbs with "future" as the object are *"shape," "advance," "fuel," "believe," "discuss," "invent," "evolve," "create," "power," "drive," "pursue," "enable," "deliver," "build," "be," and "help."*

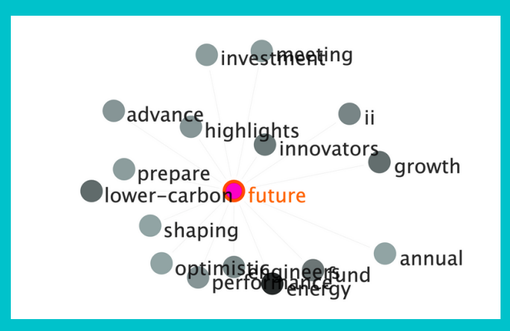
Additionally, aside from mentioning environmental issues (environmental disclosure), Chevron corpus also included terms that are relevant to social disclosure regarding "future's independent possessive pronouns, *"scientist"* was found. It is highly relevant to the *"STEM-filled"* modifier, which reflects the focus of Chevron on STEM education (social disclosure).

Generally, both corpora depict a *"bright" or "brighter"* future in several collocations. However, there were several instances where *"frustration" and "concern"* were used as sentimental expressions in the BP corpus.

In the broader context of concordances, the future in Chevron's pages seems to be more *inclusive* with the presence of different stakeholders and proactive in terms of the corporation's role in such an optimistic future than the BP's one.



GraphColl screen capture of the collocation network in BP corpus calculated by Cohen's d. (Threshold 5, +/-5 span, min. freq. 5).



GraphColl screen capture of the collocation network in Chevron corpus calculated by Cohen's d. (Threshold 5, +/-5 span, min. freq. 5).

DISCUSSION

The *geographical proximity* and *pro-active approach* of BP with some European events mentioning the future can be seen as crucial factors in the more frequent use of the "future" word in the BP corpus.

BP seems to be more cautious in mentioning "future" in their discourse. This seems to explain by *constructivism*. The two companies expressed strategies that suit the fact that there is a certain extent that the people in European countries are more concerned and believed about climate change and the environment than those in the US.

Finally, the aspects of *inclusivity, proaction,* and *optimism* in regards to environmental and social concerns can be considered as strategies of environmental and social disclosure to gain, maintain, and repair the firms' *legitimacy* in doing their critical-but-controversial business.

CONCLUSION

This research offers a unique case study applying critical discourse analysis and corpus linguistic analysis to examine strategic communication messages on social media about the future. It contributes to the literature on strategic communication for companies' legitimacy by critical-but-controversial industries.

Limitations: The corpus tool allows analysis of a large number of words, however, they are not yet able to detect the meaning and connections among words. Therefore, contextual and co-textual factors need to be taken into consideration.

This interpretation was manually undertaken, therefore, the analysis is likely to be affected by the researcher's perception and interpretations.

Future research:

- *First,* extending the research to more companies' social media would provide an insightful picture.
- *Second,* assessing the adoption of strategic communication using dimensions such as company revenue or the use of different social media may provide more insights.
- *Finally,* digging into collocation network analysis might provide deeper insights into the use of language in context by these companies.

Charts at page 2 →

CHARTS

Year	BP	Chevron
2013	506	38265
2014	14719	50914
2015	27240	46435
2016	36443	16135
2017	45634	12377
2018	49525	14898
2019	62768	16373
2020	31871	20879
2021	9837	14075
Total	278543	230351

Table 1: Number of words (lemmas) in the two copora devided into 9 year sub-copora

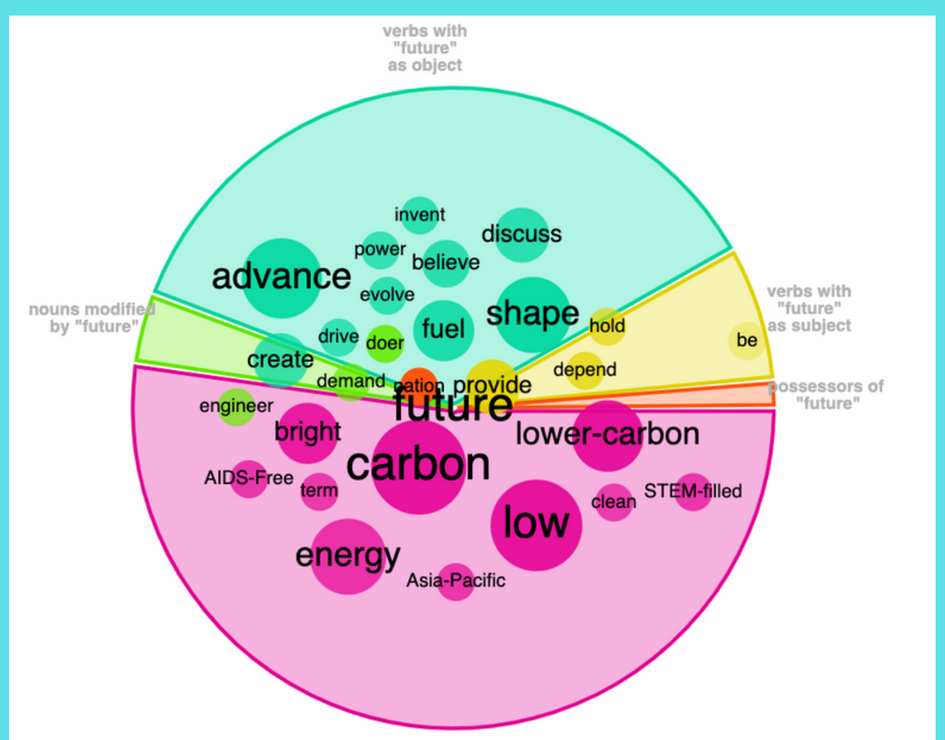


Figure 7: Chevron's corpus word-skecth

your feedback into consideration for	*future*	promotions. Thanks ^AW AirBP's dual
world transition to a lowcarbon	*future*	Please visit NIh3hEHrOC to learn
letting us know ^AW The	*future*	of transport is exciting. There
to achieve both? Watch here"	*future*	of transport is exciting as
the key factors driving the	*future*	of transport at POLITICOÕs Connected
want to know about the	*future*	of energy? Our chief economist
you in interested in the	*future*	of energy? How the world
want to know about the	*future*	of energy? Our chief economist
you in interested in the	*future*	of energy? How the world
we'll look into this "The	*future*	is bright but different" Tc9GYYGQ0H
BP $BP exsXO9YKPP RsyCCeZ0s9 "The	*future*	is bright but different" Tc9GYYGQ0H

Figure 5: Concordance with future in BP's corpus

Position	Collocate	Cohen's d	Freq (coll.)	Freq (corpus)
R	frustration	1.14	6	10
L	transition	1.13	83	231
L	concern	1.1	6	15
L	lowcarbon	1.1	123	542
L	advance	1.1	13	42
R	transport	0.94	22	66
L	systems	0.8	5	12
R	faster	0.7	5	25
L	interested	0.7	9	21
L	commitment	0.66	27	100
L	world	0.65	54	471
R	publishes	0.64	5	5
L	bright	0.63	17	28
R	gxbhphkemh	0.61	6	14

Table 7: Dispersion of collocated words with "future" in BP corpus

	BP			Chevron		
Year	*Tokens*	Frequency	Relative frequency	Tokens	Frequency	Relative frequency
2013	506	4	79.06	38265	32	8.37
2014	14719	13	8.84	50914	35	6.88
2015	27240	24	8.82	46435	38	8.19
2016	36443	33	9.06	16135	19	11.78
2017	45634	60	13.15	12377	8	6.47
2018	49525	100	20.2	14898	5	3.36
2019	62768	179	28.52	16373	19	11.61
2020	31871	11	3.46	20879	14	6.71
2021	9837	8	8.14	14075	36	25.58
Total	278543	432	179.25	230351	206	88.95
Average	55708.6	86.4	35.85	46070.2	41.2	17.79

Table 2: Number of times the word "future" was mentioned over the years in two corpora

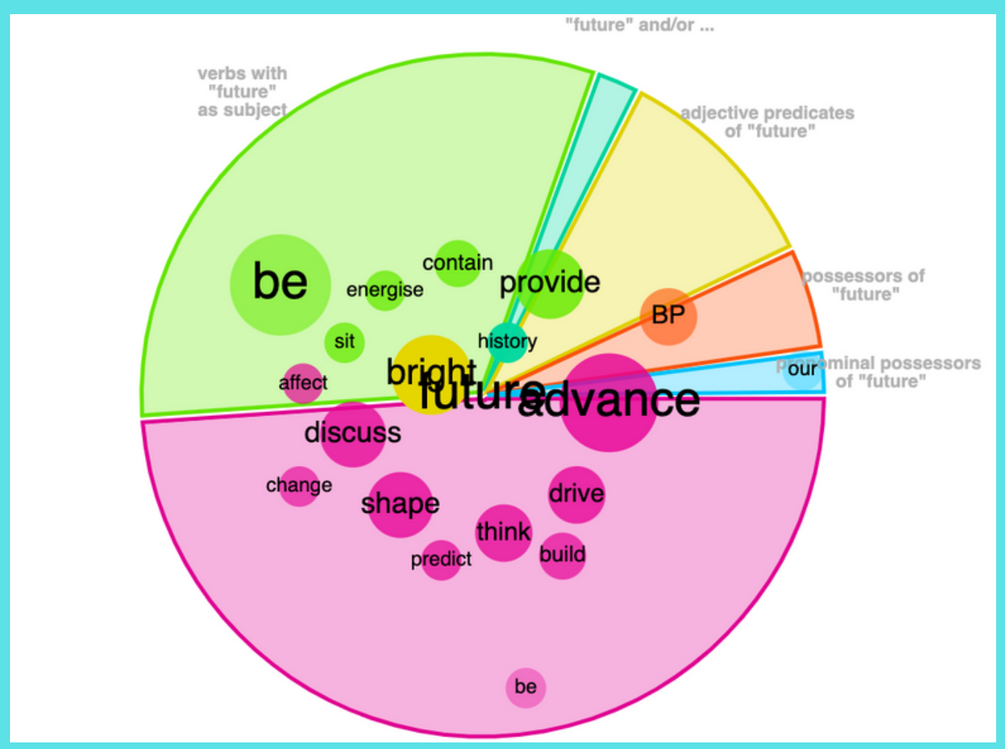


Figure 6: BP's corpus word-skecth

Position	Collocate	Cohen's d	Freq (coll.)	Freq (corpus)
R	innovators	1	13	37
R	engineers	0.92	9	55
L	highlights	0.92	7	44
L	shaping	0.85	5	6
L	performance	0.84	7	46
R	energy	0.8	67	731
L	optimistic	0.8	5	7
R	fund	0.751	14	52
L	prepare	0.751	6	22
L	investment	0.62	6	64
R	ii	0.62	10	17
L	lower-carbon	0.61	18	34
R	meeting	0.6	6	77
L	advance	0.59	7	27
R	growth	0.58	17	125
R	annual	0.5	5	70

Table 8: Dispersion of collocated words with "future" in Chevron corpus

Watson other executives optimistic about	*future*	of LNG WGCParis2015 eso9khsfk3 OsaiyuwuOyomwan
Watson other executives optimistic about	*future*	of LNG WGCParis2015 ZdOZ9R6XRn Chevron
math science for a better	*future*	Monterey News- KSBW Home DuC8DBWALS
need to build a bright	*future*	F4lFlNntCt "read the first letter
Chevron's long history and bright	*future*	BalanceForBetter IWD19 6ONuwUXvuS iw2Bdfwb9h" CEO
billions to advance a lower-carbon	*future*	for all. This is how
higher returns in a lower-carbon	*future*	CFO Pierre Berber recently spoke
a role in a lower-carbon	*future*	as fuel, industrial feedstock, and
the transition to a lower-carbon	*future*	learn more at zIywMmNNSa Ro8F2GpZ8S
we're working toward a lower-carbon	*future*	Learn more here: rWptQst4Bi gMYBIMKbUC

Figure 5: Concordance with future in Chevron's corpus