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Towards sustainability in the global oil and gas industry: Identifying where the emphasis lies

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ABSTRACT

There are growing concerns regarding the compatibility of the oil and gas industry in a sustainable future. Many companies claim to address sustainability and are engaged in a plethora of sustainability initiatives related to their supply chain operations. However, it is often difficult to make sense of this whirlwind of corporate activities, as research has failed to verify these claims' veracity. We analysed one hundred and fifty annual reports of fifteen oil and gas companies across Europe, Asia and America to determine whether these companies support their green rhetoric by pushing their supply chain in the direction of sustainability. Content analysis was used to codify and explain what sustainability the companies emphasise in their supply chains. Findings indicate that in addition to the disparity that exists in the supply chain sustainability emphasis in the global oil and gas industry, oil and gas companies in Asia and America were lagging behind and still have a lot to do if they are to make a comprehensive emphasis on the three dimensions of sustainability in their supply chains. We argued that the observed emphasis of these oil companies would not result in a more sustainable oil and gas industry in the future; therefore, we expect them to act more sustainably given the nature of their operations and constraints of the industry.

1. Introduction

It is not difficult to discover examples of companies that have been caught saying one thing and doing another. Sometimes, as with the Volkswagen emissions crisis, there is an apparent lack of emphasis on sustainability (Cavico and Mujtaba, 2016). There are discrepancies in how organisational emphasis has been assessed and implemented at times; for example, some organisations have placed a considerable emphasis on sustainability while indulging in environmentally harmful practices (Abson et al., 2014). Sometimes executives speak out publicly about sustainability concerns, but they often fall short of the standards they set for themselves (Foote et al., 2015). In certain cases, corporate organisations have issued rosy sustainability and annual reports despite their underlying performance being bad (e.g., the Enron case). As Wilding et al. (2012) noted, many companies claim to address sustainability across their operations, but due to the lack of a comprehensive sustainability framework to assess their emphasis, research has failed to verify whether this is indeed the case. Similarly, it seems that the environmental sustainability dimension is more represented and explored in the Sustainability and SCM literature compared to the social and economic dimensions (Seuring and Müller, 2008; Morali and Searcy, 2013). Therefore, in this paper, annual reports are utilised to ascertain to what extent organisations value all three dimensions of sustainability, as they claim to be doing. In order to bridge the gap in the literature over effort and emphasis from a broader perspective, this study draws on a sustainability framework to conduct a content analysis of leading oil and gas companies to determine and identify the degree to which they have emphasised, portrayed and reacted to changes in sustainability dimensions using annual reports. The primary goals are to (1) outline sustainability dimensions that are currently being emphasised in the global oil and gas industry, probably at the detriment of other aspects; and (2) build an understanding of the relationships between the various themes relevant to the fundamental concepts of sustainability in the oil and gas industry.

2. Literature review

Sustainability is a contested concept with divergent views and perspectives (Johnston et al., 2007; Vos, 2007). The concept of sustainable development was addressed by the UN's World Commission on Environment and Development's 1987 Brundtland Report (Bruntland, 1987). Sustainable development was defined as "a development that

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meets the demand of the present generation without compromising the ability of the next to meet theirs". This provided a broad view of the concept of sustainability from which most definitions of the concept are based. Savitz and Weber (2006, p. 6) defined sustainability as "any process that enables a company to create profit for its shareholders while protecting the environment and improving the lives of those with whom it interacts". In the same vein, Carter and Rogers (2008a, p. 368) defined sustainability as "the strategic, transparent integration and achievement of an organization's social, environmental, and economic goals in the systematic coordination of key interorganizational business processes for improving the long term performance of the individual company and its supply chains". Dyllick and Hockerts (2002, p. 131) viewed the concept of sustainability as "as meeting the needs of a firm's direct and indirect stakeholders (such as shareholders, employees, clients, pressure groups, communities etc), without compromising its ability to meet the needs of future stakeholders as well." While Hassini et al. (2012, p. 70) defined sustainability as "the ability to conduct business with a long-term goal of maintaining the wellbeing of the economy, environment and society". Sustainability improvement has become a commonly discussed goal of companies; however, it may be challenging to quantify how sustainable an enterprise is (Slaper and Hall, 2011). John Elkington experimented with a modern method to evaluate sustainability in corporate America in the mid-1990s. This concept was termed the Triple Bottom Line (TBL) and was expanded to cover environmental and social considerations beyond conventional metrics of profitability, investment return and shareholder value. Elkington (1999) noted that the concept of sustainability is at the intersection of the three components: economic, environmental, and social concerns. Thus, emphasising the need for environmental, social and economic performance for the improvement of the human quality of life. Winter and Knemeyer (2013) argued that this implies that an organisation should not only focus on economic aspects but also needs to focus on sustaining natural resources and the societies in which it operates.

Sustainability is becoming a key survival issue for companies amid the mounting pressure by the public for more responsible practices and increasing regulations especially those that impact operations and costs (Abdalla and Siti-Nabiha, 2015; Bai et al., 2015). Companies have an increasing awareness of the environmental and social burdens associated with their activities (Seuring, 2013). Global companies have realised and recognised that sustainability is an important aspect of their operations strategy (Mehregan et al., 2014). Against this background, companies may be held responsible for generating considerable social and environmental harm to society (Luthra et al., 2015; Rezaee, 2018). Companies are also perceived as engines of economic growth and wellbeing in society as well as key actors facilitating quality of life (Touboulic and Walker, 2016; Basta et al., 2018). As such, they are expected by society to take essential measures to prevent or at least mitigate adverse environmental and social impacts. Hence, companies are under increased stakeholder scrutiny to transform business behaviours and align their actions with the principles of sustainability (Roy et al., 2018; Panigrahi et al., 2019).

Disregarding sustainability can be costly for an organisation and jeopardise its prospect if neglected (Porter and Kramer, 2002). Companies, therefore, need to address the social, economic, and environmental dimensions of sustainability to enhance their prospect. Because each of the three sustainability dimensions and its sub-dimensions is somewhat related to supply chain management (SCM) practices, the activities of the company need to balance all the three dimensions and its sub-dimensions. According to Spence (1974), to reap the benefits of its sustainability measures, a company must communicate and align all three sustainability dimensions with its SCM practices. According to Dentoni and Peterson (2011), signalling of sustainability efforts in the company's annual report is essential because it conveys to stakeholders the impression of how responsible a company is in comparison to others. Thus, organisations which have sustainability at the core of their business need to convey this value by signalling that they have been able to give sufficient importance and attention to some SCM practices by balancing all the dimensions of sustainability.

One methodological difference in sustainability and SCM research is that most analysts, instead of using annual reports have been concentrating on Corporate Social Responsibility (CSR) reports, which give an overview of social initiatives instead of indicating specific elements of the TBL (Neu et al., 1998; Omar et al., 2019). CSR reports are predominantly centred uniquely on the ecological dimension of sustainability and do not give a measure of environmental practices relative to financial and social dimensions. TBL offers a basis for the assessment of company performance using the economic, social, and environmental aspects (Alhaddi, 2015). Targeted at corporate entities, the TBL focuses in a balanced way on the importance of the economic, social and environmental value that an organisation provides. In order to measure their performance, several companies are implementing the TBL sustainability model (Slaper and Hall, 2011). Similarly, existing sustainability research on the oil and gas industry focused on the development of qualitative and quantitative sustainability criteria for internal and external supply chains, the study of consumer perceptions and behaviour towards sustainable supply chains of oil and gas and the factors enabling the adoption of sustainable practices. Amidst these diverse and growing efforts to integrate sustainability in oil and gas research, the industry seems to lack a broader perspective on its sustainability emphasis (Shqairat and Sundarakani, 2018).

Interestingly, the annual reports of companies are the primary tools that companies use to communicate their main priorities and actual commitments (Adams and Harte, 1998). Companies' annual reports are becoming a source of raw data for sustainability studies, thus serving as a tool for voluntary reporting observation (Campbell and Rahman, 2010). Annual reports are being used because companies, through the reporting process, typically indicate what they consider as significant are highlighted, discussed and debated, while less relevant items are omitted or assigned to low profile study sections (Guthrie and Gibson, 1996). In addition, what companies want to include in their annual reports and exclude from them is a deliberate choice that sends an important message to stakeholders (Campbell and Rahman, 2010). The annual report is the archive which is easily accessible and is accessed most frequently by different partners to acquire various sorts of data, including financial and non-financial (Neu et al., 1998).

3. Methodology

3.1. Content analysis

When a research is started, the study design must be created. To guarantee reliability, there must be a rationale between decisions taken and how the research will be conducted. This study used the framework of content analysis to ensure the necessary methodological rigour. NVivo; a software used in qualitative and quantitative research was adopted to carry out the content analysis. Content analysis as "a research methodology that utilises a set of procedures to make valid inferences from the text. These inferences are about the sender(s) of the message, the message itself, or the audience of the message" Weber (1990, p. 9). It is "a research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns" Hsieh and Shannon (2005, p. 1278). These definitions underscore the elements of inference, objectivity, and content. Thus, this technique causes the researcher to impartially explore the importance contained in a text through the perspective provided by the content itself. A content analysis follows strict laid down criteria which consists of four iterative stages (Mayring, 2000, 2008) which should be followed for the content analysis to be effective (Guthrie and Gibson, 1996; Guthrie and Abeysekera, 2006).

Stage 1. Data Collection: The material to be collected and the unit of analysis are described and delimited.

Stage 2. Descriptive analysis is used to examine the formal aspects of

the content.

Stage 3. Selection of the categories: Structural dimensions are chosen to be applied to the collected content, including the key subjects and associated analytical categories with comprehensive classifications of each structural dimension.

Stage 4. Material evaluation: To identify emerging issues and to interpret the findings, the content needs to be evaluated according to the structural dimensions and analytical categories.

3.2. Material collection

For this study, the researcher retrieved the annual reports of Asian and American oil and gas companies listed on the London Stock Exchange and that of the UK oil and gas companies from the Financial Analysis Made Easy (FAME) database (https://fame4.bvdinfo.com/version-202073/fame/1/Companies/List). The oil and gas companies were identified using the Standard Industrial Classification Code (SICC). Standard Industrial Classification (SIC) are four-digit codes assigned to establishments to identify their primary business. It categorises and organises industries to which companies belong by their business activities. These codes were developed to help identify economic activities across different industries and government entities. The classification was also created to promote data collection, reporting, and analysis; and to encourage accuracy and comparability when presenting statistical data obtained by numerous government departments and private entities (Smith and James, 2017). The basis for selecting annual reports for content analysis is that, as Milne and Adler (1999) stated, the yearly report is regularly utilised in sustainability research to indicate the sustainability practices of a company. Adams and Harte (1998) contended that annual reports are of great social importance; they are readily available once published and are utilised as an essential mode of communication by a company.

Five (5) companies from Europe, America and Asia were randomly chosen from the list of the companies based on their size. The study concentrated on European, American and Asian oil and gas companies that have activities in Africa so as to assess the substance of these companies' annual reports to distinguish emerging themes and practices as well identify similarities and differences in their sustainability emphasis in the last decade. An aggregate of fifteen (15) companies and their published annual reports for the last ten (10) years (2010–2019) were chosen for examination.

3.3. Descriptive analysis

The most common method for conducting a content analysis in qualitative research is simply through a word-frequency count (Stemler, 2000). The assumption made is that the words most discussed are the words which represent the most significant concerns (Zhang and Wildemuth, 2009). Content analysis, however, goes well beyond mere word counts. What makes the technique specifically interesting and compelling is its heavy dependence on data coding and categorisation.

This study utilised the paragraph as a context unit in construing the exact importance of the themes of sustainability in the annual reports. The paragraph was used as the unit of analysis as the disclosure aspect was categorised and the frequency (i.e. the number of paragraphs) was noted. The count of paragraphs confirms the number of items dedicated to a given element, as each "narrative" tries to compete in the annual report for its right to space. The researcher was mindful when doing word frequency counts that certain words may have several meanings. Using the word frequency count as a rule of thumb, words of potential interest were identified, and then a Key Word In Context (KWIC) check was performed to test the accuracy of certain terms by identifying the paragraph in which the term was used to analyse the use of the word in detail. This helped reinforce the validity of the inferences that were being made from the data.

This study utilised the units of themes or clause as the most appropriate methods in resolving the issues implicit in the recording units. Quantitative content analysis requires recording units to be correctly counted (Riffe et al., 2005). Volumetric examination, which has been broadly used to measure information (Holsti, 1969) was employed in this research. The volumetric analysis depicts the presence of information as well as count the frequency of its appearance. Krippendorff (2012) stated that volumetric analysis could allude to the number of times a specific phenomenon is referenced or the number of sections, pages and passages in which it is referenced, or the number of sentences committed to it. Hence, counting the repeated information is viewed as a valid strategy for showing the relative significance put on information by the discloser. This research utilised volumetric analysis to tally the occurrence of information relating to sustainability measures revealed in annual reports. Data were recorded and tallied until whole segments of these documents were covered. The volumetric technique was picked because it is a valid strategy for reflecting the significance, concern, consideration, or emphasis placed on the sustainability information disclosed. In analysing the study's findings, the term of recurrence (volume) demonstrates that each appearance of that sustainability information would have been recorded and tallied. Since the number of sections analysed in annual reports influences the volume of sustainability information recorded, it is vital to express the segments of the report that were analysed in this study so that the findings of this study can be compared accurately with others. This study concentrated on the following areas in the annual reports:

i. The Chairman's letter
ii. Chief Executive's letter
iii. Business Model and Strategy
iv. Strategic report

3.4. Selection of the category

There are two techniques to data coding, which can be used in conducting content analysis; emergent and a priori coding. In emergent coding, categories are established after some examination of the data in which the researcher analyses the content and creates a collection of features that form a checklist which is then validated, and the coding is implemented on a large-scale data basis. With a priori coding, it is essential, before starting a content analysis, to build a substantial and sufficient number of classifications of data which is a set of 'categories' into which content units will be ordered (Holsti, 1969, p. 95). All the content arranged into a similar classification must allude to a similar item, occasion, or attribute (Harwood and Garry, 2003). The data classifications and categorisation can be created before the recording begins or set up during the recording process (Carley, 1993). The principal challenge is to decide the definitions for primary categories and subcategories of data into which narrative will be recorded. The operational meaning of subcategories is explicit to each research, yet for each situation, it is necessary to give indicators that help classify data (Holsti, 1969; Riffe et al., 2005). The definitions for the primary categories and subcategories of data to be captured must be constructed to work in unison with the goal that the internal validity of captured data can be accomplished satisfactorily.

Based on a summary of the different terms surrounding the issue of sustainability, this research used the dimensions of sustainability established in previous studies in this research. There are three dimensions of sustainability; "economic, social and environmental" (Arena et al., 2009, p. 211). Sustainability issues focus on integrating these dimensions by addressing the needs of critical stakeholders and adopting a long-term view. It suggests that there are practices that organisations can participate in that not only affect the society and natural environment positively, but which also result in economic benefits (Seghezzo, 2009). It is believed these dimensions embraces the idea that an organisation must consider everything, and the meanings contained in its economic, social and environmental aspects in order to remain

fundamentally sustainable in the long term. Comparative terms from these studies were utilised in this study; though, terms with various characterisations and more than single word were removed. This was done to ensure that no unit of data content was placed in more than one category. These dimensions have been adopted regularly for reporting and evaluating sustainability by organisations (Giannarakis and Theotokas, 2011). By incorporating all of these dimensional factors within this research, it was vital to examine the oil and gas companies with respect to their actions on these factors in order to determine how they deal with the sustainability dilemma of the oil and gas industry (see Table 1).

The standard sustainability disclosures, in the light of Triple Bottom Line (TBL), incorporate economic, social, and environmental components of sustainability (Seow et al., 2006). The social aspect is measured by evaluating how corporations perform sustainable and fair labour, intellectual capital, and community policies (Elkington, 1999). The economic aspect analyses the effect of the bottom line and the movement of capital on corporate activities and the economy (Elkington, 1997). The environmental aspect measures corporate activities that do not harm future generations through the effective usage of natural resources, reducing greenhouse gas pollution and mitigating ecological footprint (Alhaddi, 2015). The terms relating the three aspect of the bottom line from the literature were retrieved and the annual reports of the companies were assessed using these terms. Every one of these three measurements contain different aspects. For every aspect, there are various indicators and ideas which are portrayed by an expansive range of definitions, terms, and words. The key terms connoting each element of sustainability are highlighted in Table 2.

Thus, in this study, both deductive and inductive categories were used to define units of analysis to improve the validity and obtain more knowledge from the data. Deductive categories were based on existing literature. Out of the data arose inductive categories. The data were arranged into these categories depending on the sustainability dimension to which it belongs. Furthermore, new classifications emerging from the data were made for different subjects that are most frequently referenced by the companies.

3.5. Methodological rigour

It is up to the investigator to determine which process is suitable when using a document analysis technique, but to draw valid inferences; the classification process must be appropriate in the sense of being

Table 2
Recording units.

Dimensions	Sub-Dimensions	References
ENVIRONMENTAL ASPECTS	Emission	Abam et al. (2014); Acreche and Valeiro (2013); Baynard et al. (2017); Azevedo et al. (2017); Shokri et al. (2014); Awan et al. (2018)
	Compliance with environmental regulation	Govindan et al. (2014); Govindan et al. (2016a,b); Govindan and Hasanagic (2018); Govindan et al. (2019); Çankaya and Sezen (2019)Maletič et al. (2014)
	Waste	Shokri et al. (2014); Zhang et al. (2016); Awan et al. (2018); Çankaya and Sezen (2019) Lodungi et al. (2016); Abbas et al. (2016); Jayasinghe et al. (2019)
SOCIAL ASPECTS	Working Conditions	Ahmadi et al. (2017); Köksal et al. (2017); Kolk and Pinkse (2007); Shokri et al. (2014); Awan et al. (2018)
	Relations with the Community	Ahmadi et al. (2017); Govindan et al. (2014); Govindan et al. (2016a,b); Govindan and Hasanagic (2018); Govindan et al. (2019); Gold et al. (2010); Rentizelas et al. (2018)
	Consumer Health and Policy	Sueyoshi and Wang (2014); Ahmadi et al. (2017), Arscott (2004); Govindan et al. (2014); Govindan et al. (2016a,b); Govindan and Hasanagic (2018); Govindan et al. (2019)
ECONOMIC ASPECTS	Cost Reduction	Çankaya and Sezen (2019) Azevedo et al. (2017); Sharma et al. (2018); García-Dastugue and Eroglu (2019); Tamayo-Torres et al. (2019)
	Market Presence	Shokri et al. (2014); Pickl (2019); Shojaeddini et al. (2019)
	Financial Performance	Tamayo-Torres et al. (2019); Hafizuddin-Syah et al. (2018); Hollos et al. (2012)

Table 1
Company profile.

NAME	REVENUE (Billion)	NET INCOME (Billion)	HEADQUARTERS	CONTINENT	NUMBER OF EMPLOYEES	STOCK EXCHANGE LISTED
Royal Dutch Shell	£25	£11.9	London, England	EUROPE	83,000	LSE
BP PLC	£213	£3.03	London, England	EUROPE	72,500	LSE
Total	$209.4	$11.446	Courbevoie, France	EUROPE	104,000	EURONEXT PARIS, FWB, NYSE
Equinor	$61.2	$4.6	Stavanger, France	EUROPE	20,000	NYSE, OSE
ENI	€69.88	€148	Rome, Italy	EUROPE	32,053	BIT, NYSE, FTSE
CNOOC	$104	$18.33	Beijing, China	ASIA	98,750	
JX Holdings	$10.38	$1.59	Tokyo, Japan	ASIAA	24,691	TYO, NAG
Petronas	$46.06	$26.5	Kuala Lumpur, Malaysia	ASIA	48,000	
PTT	$5.5	$0.297	Bangkok, Thailand	ASIA	29,296	SET
SINOPEC	$13 billion	$2.7	Beijing, China	ASIA	249,142	SSE, SEHK, NYSE, LSE
Apache Corp	$ 6.315	$3.553	Houston, Texas	AMERICA	3,163	NASDAQ
Canadian Overseas Petroleum	$0.681	$0.303	Calgary, Canada	AMERICA	11	LSE, CSE
Chevron	$158.9	$14.82	California, USA	AMERICA	51,900	NYSE
ConocoPhillips	$38.73	$6.26	Houston, Texas USA	AMERICAA	11,400	NYSE
ExxonMobil	$ 279.3	$20.84	Irving Texas, USA	AMERICA	71,000	NYSE

*London Stock Exchange (LSE), *Frankfurt Stock Exchange (FWB), *Oslo Stock Exchange (OSE), * Borsa Italiana (BIT), *Nagoya Stock Exchange (NAG), *Shanghai Stock Exchange (SSE), *Stock Exchange of Hong Kong (SEHK), *Stock Exchange of Thailand (SET), *New York Stock Exchange (NYSE), *Canadian Securities Exchange (CSE).

reliable and thus replicable (Weber, 1990). The approach's transparency is considered critical (Mayring, 2000). A high degree of transparency is demonstrated in terms of the clear and unambiguous procedure used to obtain the data, the words and phrases used to categorise dimensions of sustainability and the specific justification for coding the data.

Given the specificity, objectivity and dependability of the data collection, the researcher expects that, should the content analysis be reproduced, a significantly higher level of inter-rater reliability would still be established. Although the study relies on the perspective that there are several realities, this approach to document analysis is meant to be a 'snapshot' of sustainability dimensions focused on articulating the sustainability emphasis of annual reports. In several cases, only small sections of text in the annual reports relate to sustainability. Therefore, the document being evaluated needs to be relatively distinct, thereby ensuring the process's reliability. Also, every attempt has been made to ensure reliability through procedural and coding clarity. That still does not rule out the likelihood of another coder coding differently, but it does provide a justification for the coding done by the researcher that the reader can contest or affirm. However, qualitative content analysis depends on the researcher's assessment, and in this manner, the subjectivity of the research strategy must be recognised.

4. Results

In this section, the key findings from the analysed data will be presented and discussed. The analysis draws primarily on the information collected through the annual reports of the oil and gas companies used as the population of the study.

4.1. Descriptive analysis

In analysing the annual reports, seven categories and subcategories shown in Table 3 were identified and arranged by categories for this analysis. The coding process resulted in a total of seven (7) categories and twenty-seven (27) subcategories for the content analysis, as shown in Table 3. These categories arose deductively from existing literature, based on the variants of the triple bottom line (TBL) before the materials were analysed and inductively from the materials.

Results in Fig. 2 indicate that European oil and gas companies accounted for 815 of the total coding, followed by American and Asian oil and gas companies with 275 and 391, respectively. These codings provide a contextual representation of the sustainability emphasis and

Table 3
Theme categories and subcategories.

CATEGORIES	SUBCATEGORIES
ECONOMIC ASPECT	Cost
	Energy Demand
	Financial Performance
	Markets
	Volatility
SUSTAINABILITY TARGETS AND GOALS	Climate Change
	Energy Transition
	Paris Agreement
	Technology
ENVIRONMENTAL ASPECT	Environmental Impact
	Renewables
ETHICS, GOVERNANCE AND POLICIES	Certification
	Ethics & Compliance
	Regulation & Policies
	Risk Management
SOCIAL ASPECT	Community Involvement
	Employee Engagement
	Human Rights
	Safety, Health and Workplace
SUPPLY CHAIN	COVID 19
	Customer Relationship
	Logistics
	Supplier Relationship

Fig. 1. Word cloud of subcategories.

issues categorised in the Nvivo software used for the content analysis. It does appear from the results in Fig. 3 that European oil and gas companies with about 55% of the total codings seem to pay greater emphasis to sustainability issues in their annual reports in comparison to Asian and American oil and gas companies with 26% and 19% respectively of the total codings. This could be attributed to the fact that several of the reports were consistent with the Global Reporting Initiative (GRI) guidelines in the annual reports reviewed. In addition to consistency with the GRI standards, all European and some American companies pointed out conformity with the sustainability principles of the United Nations General Council (UNGC). However, some Asian companies did not expressly state conformity with any globally accepted sustainability reporting framework. In the same manner, several of the evaluated firms disclosed similar details on the TBL. However, the scope of the TBL issues revealed varied based on the geographical position of the firms, with European firms providing more in-depth reports.

The individual nodes with the greatest number of text segments coded included renewables, ethics and compliance, community involvement, lower emissions, energy transition, energy demand, safety, health and workplace and climate change, as seen in Table 4. This indicates that oil and gas companies place more emphasis on sustainability issues related to climate change, renewables, the safety and health of employees, community involvement, ethics and compliance, lower emissions and energy demand and transitions in their annual reports compared to the emphasis on issues such as cost, human rights and long-term growth.

When grouping all the codes by themes as seen in Table 4, the environmental aspect represented 11.4% of the total number of coded segments with social aspects representing 13.8% while sustainability targets and goals represented 14.9%. Economic aspects, supply chain, governance and ethics, and sustainability strategy represented 15.5%, 15.9%, 14.8%, and 13.7% of the total number of coded segments. These findings mirrored the observation identified in the word cloud which indicated that the principal focus of the sustainability issues addressed in the oil and gas companies annual reports were primarily focused on emission and carbon (environmental aspects), employees and safety (social aspects), operations and customers relationships (supply chain) and technology (sustainability targets). Even though European oil and gas companies with 101 codings seem to lay more emphasis on themes related to the environmental aspects of sustainability when compared with their American (29) and Asian (39) counterparts, it is somewhat surprising to notice that overall, the oil and gas companies are paying less emphasis on environmental aspects of sustainability with 169 codings in comparison to social and economic aspects with 205 and 230 codings respectively. This could be due to the push by these companies

Fig. 2. Sustainability Strategies in Oil and Gas companies.

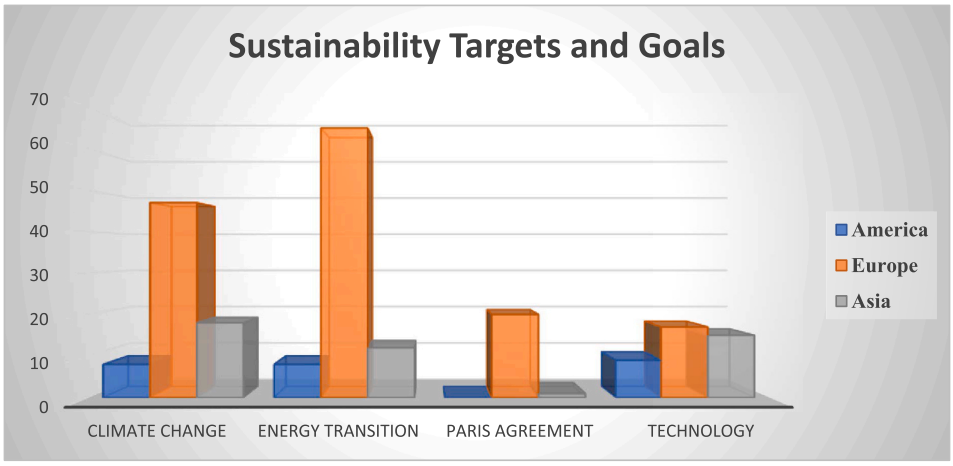

Fig. 3. Sustainability targets and goals.

to transition to renewable sources and does less damage to the environment and the development of seismic technologies that have helped reduce the environmental impacts of their operations.

A word cloud of the collective twenty-five (27) subcategories were developed to illustrate which words or phrase appeared most frequently as seen in Fig. 1 and these included: emissions, carbon, energy, technology, operations, customers, employees, risks just to mention a few. The word cloud reveals the most frequent and significant concepts from the twenty-five (25) and provides insights about their interactions. Specifically, the word cloud indicates that energy, technology, operations, emissions, employees and customers would be significant points of interest for oil companies.

5. Discussions

5.1. Sustainability strategies in oil and gas

This section aimed to identify the sustainability strategies emphasised by oil and gas companies in Europe, America and Asia. After extracting the relevant statements on sustainability strategies from the annual reports, they were gathered into subcategories shown in Table 4, according to the most common sustainability strategy mentioned in the annual reports. Results in Fig. 2 indicate that European oil and gas companies emphasised lowering emissions and value addition compared to long-compared to long-term growth, sustainable operations, and strategic flexibility as the most embedded sustainability strategies in their annual reports. On the other hand, American oil and gas companies emphasised strategic flexibility and value addition as its most dominant sustainability strategy in comparison to long-term growth, lowering emissions and sustainable operations. In contrast, Asian oil and gas companies emphasised lowering emissions and strategic flexibility in comparison to value addition, sustainable operations and longterm growth.

The institutional environment provides the possibility to understand the differences in strategies followed by oil companies based in Europe, Asian and the United State. The institutional theory offers a framework for evaluating assessing how organisations are pursuing strategic advantage, credibilitycorporate communications' essence, and assessing how organisations pursue strategic advantage, credibility, and responsiveness to environmental considerations (Dias and Tavares, 2018). The institutional environment is integrated with various organisational components through isomorphism. Institutional isomorphism is a blend of coercive, mimetic and normative coercion that guarantees commitment and strategy for social aspirations and development of organisations (DiMaggio and Powell, 1983). Coercive isomorphism arises when a powerful client needs a supplier to follow certain practices; mimetic isomorphism stems from environmental instability, which causes an organisation to imitate the activities of a more successful company while Normative isomorphism is as a result of companies implementing procedures that fulfil the guidelines of professional bodies. (McGovern et al., 2017). Reporting sustainability issues in the company annual report may be a consequence of normative isomorphism. Oil and gas

Table 4
Coding frequencies.

	America	Europe	Asia	Total
ECONOMIC ASPECT				
Cost	12	10	4	26
Energy Demand	24	39	22	85
Financial Performance	8	13	8	29
Markets	14	25	20	59
Volatility	7	16	8	31
	65	**103**	**62**	230
SUSTAINABILITY TARGETS AND GOALS				
Climate Change	8	47	18	73
Energy Transition	8	65	12	85
Paris Agreement	0	20	1	21
Technology	9	17	15	41
	25	**149**	**46**	220
ENVIRONMENTAL ASPECT				
Environmental Impact	16	38	15	69
Renewables	13	63	24	100
	29	**101**	**39**	169
ETHICS, GOVERNANCE AND POLICIES				
Certification	2	3	3	8
Ethics & Compliance	12	48	39	99
Regulation & Policies	10	30	13	53
Risk Management	4	34	21	59
	28	**115**	**76**	219
SOCIAL ASPECT				
Community Involvement	23	46	23	92
Employee Engagement	4	19	10	33
Human Rights	0	4	0	4
Safety, Health and Workplace	14	37	25	76
	41	**106**	**58**	205
SUPPLY CHAIN				
COVID 19	5	14	9	28
Customer Relationship	8	41	24	73
Logistics	17	26	23	66
Supplier Relationship	2	38	11	51
	34	**131**	**70**	235
SUSTAINABILITY STRATEGIES				
Longterm Growth	7	6	7	20
Lower Emissions	12	58	17	87
Strategic Flexibility	14	17	9	40
Sustainable Operations	6	7	2	15
Value Addition	14	22	5	41
	53	**110**	**40**	203
Grand Total	**275**	**815**	**391**	**1481**

participates in the same trade groups such as the International Association of Oil and Gas Producers (IOGP) and the International Petroleum Industry Environmental Conservation Association (IPIECA) which facilitates information sharing and thus creating a convergence of industry perspective on issues related to sustainability. This has a significant impact on the strategies adopted by the oil companies. As evident in Fig. 2, each of the oil companies in the different continents exhibit similar emphasis on longterm growth and strategic flexibility while maintaining sustainable operations. This increasing similar emphasis may be a part of an effort to gain positive recognition for what they are saying and doing. These does not however cause similarities among oil industry emphasis but they provide a context for the circumstances under which similarities develop (see Figs. 4–8).

Additionally, Bartlett and Ghoshal (2002) also pointed to the rationale behind some of the variations in sustainability strategies by European, Asian and American oil and gas companies. He contended that Multi-National Companies place considerable importance on adapting to its local culture, regulatory environment and standards and market conditions which makes them follow multiple strategies combining the benefits of global operations with a sense of local responsiveness. As such, each firm adopts strategies based on their countries of origin (Lin, 2001). This pattern seems to reflect the response to sustainability strategies by the oil companies analysed. Another explanation could be that, maybe more than any other sector, oil companies implement strategy in a geographically coordinated manner as a result of their access to different supplies, reserves and the possession of various technical and economic tools and skills (Ernst and Steinhubl, 1999). Thus, oil companies might be obligated to follow different strategies based on their location. Despite their differenece in emphasis on lower emission and value addition by oil and gas companies in Europe, Asia and America, their strategy emphasis towards sustainability is remarkably more similar than even a few years ago.

Compared to their American counterparts, it seems that European and Asian corporations are more committed to pursuing a low carbon future as they aim to drastically reduce carbon in their operations and expand modern, lower carbon enterprises. Concerns about pollution combined with a renewed focus on climate change and early experiences with efforts to reduce CO_2 emissions in the EU and elsewhere have resulted in an increased focus on sustainability action to limit carbon dioxide (CO2) and other greenhouse gases emitted by fossil fuel use. Globally, GHG regulation is on the increase. We see, for example, an increase in pollution pricing schemes in Europe and China (Wu et al., 2019). Additional monitoring of regulations in Europe and a greater focus on reducing flaring and methane emissions in many jurisdictions may be responsible for this change in focus that has seen European and Asian oil and gas companies put emphasis on reducing emissions relative to their American counterparts (Levy and Kolk, 2002). Apparently, with the world demanding a transition to a low carbon future, European and Asian oil and gas companies are also adjusting (Wu et al., 2019). As stated by BP, "we enter a new decade with a new company purpose: to reimagine energy for people and our planet. We have also set a new ambition: to become a net-zero company by 2050 or sooner, and to help

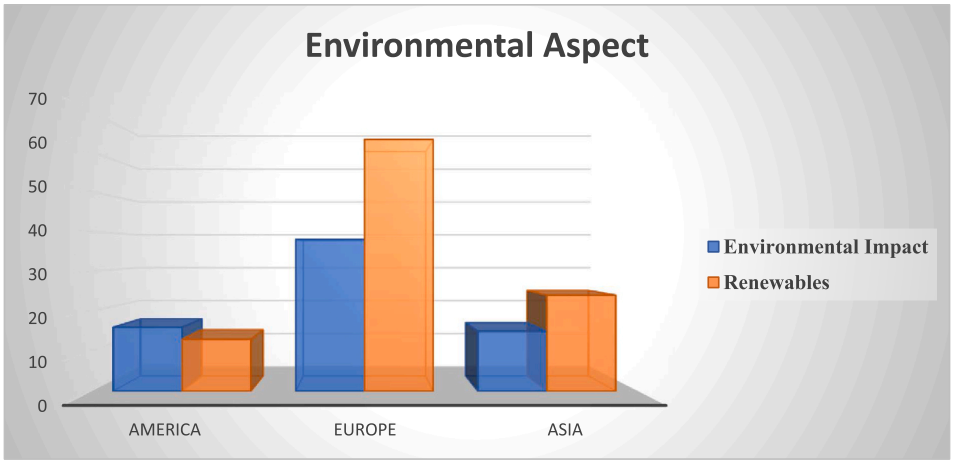

Fig. 4. Environmental aspects of sustainability.

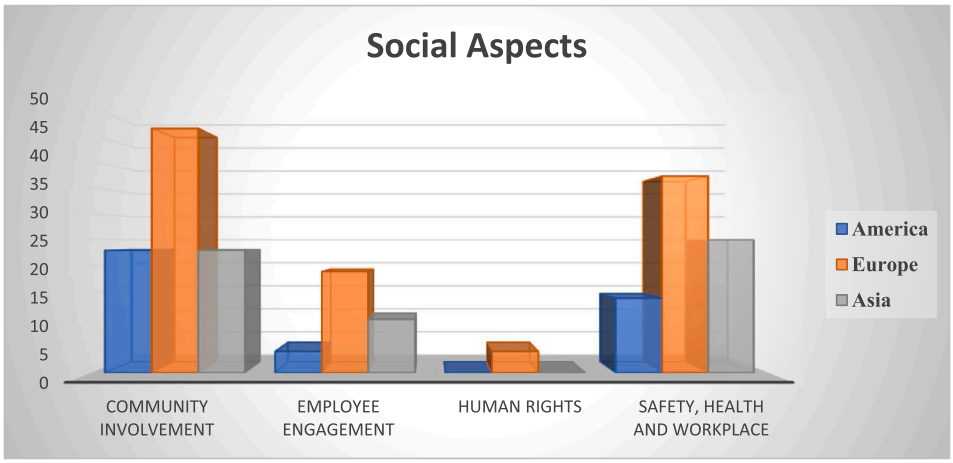

Fig. 5. Social aspects of sustainability.

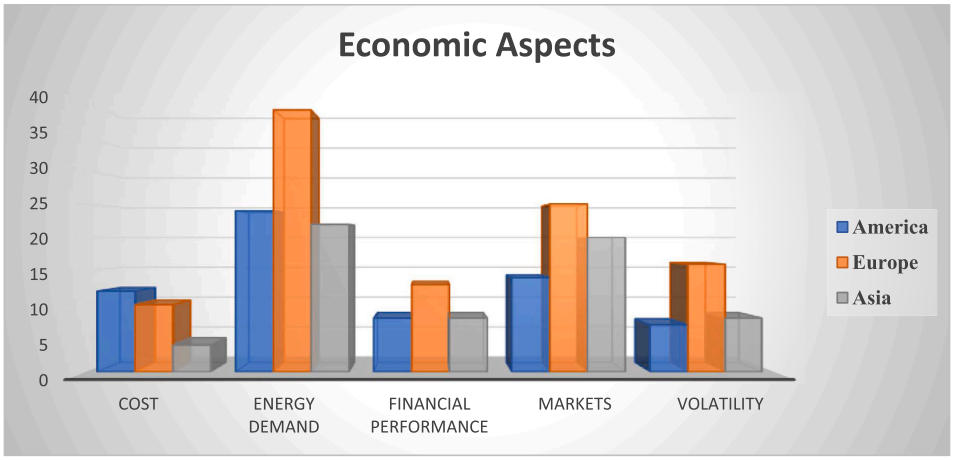

Fig. 6. Economic aspects of sustainability.

Fig. 7. Ethics, governance and policies.

the world get to net-zero". Similarly, CNOOC asserts that "the Company undertakes to adjust the industrial structure and develop low-carbon energies, emphasise international cooperation and meet regulatory requirements to optimise the allocation of resources and practice energy-saving and emission reduction". Developing a low-carbon world is an inevitable choice in combating climate change. The only way for energy firms to grow sustainably over this period is to increase their supply of low-carbon energy and meet lower carbon emission targets.

Sustainable operations have been described by Bettley and Burnley (2008) as key decisions and strategic management of core business

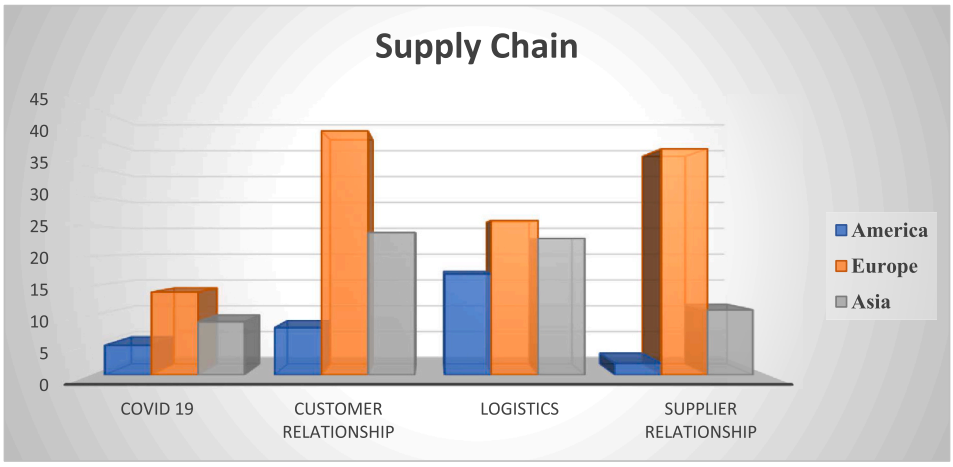

Fig. 8. Supply chain emphasis by oil companies.

assets and procedures, infrastructure, capital and key operational practises needed in any supply network to manufacture and deliver products or services and values that the customer needs. The importance of sustainable operations which seems to be emphasised more evenly by the oil companies in Europe, America and Asia was evident in BP asserted that "BP's purpose and ambition reflect its culture and together they position BP well to develop increasingly sustainable operations". Chevron, on the other hand, described their strategy as "to create a more prosperous, equitable and sustainable world through our operations". In the same vein, ExxonMobil stated that "operating sustainably to support improved living standards around the globe" is part of its sustainability strategy. Petronas views "a future where high performance supports more resilient and sustainable operations" as their strategy while Shell states that "operating in ways which are economically, socially and environmentally responsible" is part of its strategy. Emerging evidence from this analogy is that part of the sustainability strategies of today's oil companies is to ensure a sustainable supply of energy in the current scenario, characterised by increasing growth and geographical redistribution of demand, increasing resource access difficulties and ramping international competition. Part of this business strategies is the hunt for new frontiers in exploration and so-called difficult resources, the determination to reduce the effect of increasing energy production on the environment and to make activities more and more efficient in various production contexts, with an emphasis on safety and the well-being of people. To become more sustainable, the analysed oil companies are transitioning to renewable energy sources, becoming strategically flexible and developing production processes and products with lower emissions.

It also appears that European and American oil and oil gas companies more than their Asian counterparts recognised adding value to various stakeholders as a significant part of their sustainability strategies. Although the oil and gas industry face significant obstacles, European and American oil firms tend to have the resilience and power required to bring long-term value to shareholders. The businesses are moving on a refocused approach to become more flexible and competitive, with a heavy emphasis on maximising profit rather than creating quantity and size. Various explanations and approaches have been given in academic literature to indicate past responses to the question about to whom does an institution has a responsibility. According to the shareholder approach, which Quazi and O'brien (2000) consider as the classical view of agency theorists in CSR, a company's economic duty is to maximise its earnings (Friedman, 1962). The shareholder is the company's focal point to which they go in search of how-to maximise their income. This approach can also be described as corporate entities dealing with CSR "only to the degree that it relates to the company purpose, which is to create long-term value for the corporate owners" (Foley, 2000, p. 11). An underlying approach by the analysed companies appears to be to build wealth for clients. Simply put, their job is to find and translate energy reserves into financial returns, and by doing so, they can help to develop a stable and secure future for shareholders. Therefore, they concentrate on value generation for their clients and customers through a manifest presence in the entire value chain. This is visible when European oil companies are for example emphasising that their strategy is aimed at achieving a thriving business "that is valued by you, our shareholders, as a force for good as well as a provider of competitive returns or describing their strategy as "to continue to create value for our stakeholders who rely on us to maintain our financial, operational and cultural strength" .

Attaining longterm growth, both as a company and for shareholders was among one of the features of the sustainability strategy visible through the annual reports of the companies. BP emphasised that "our ability to create long-term value for our stakeholders" is core to their sustainability drive of operating sustainably, safely and responsibly. ExxonMobil asserted that "ExxonMobil continues to make progress on our long-term growth plans. We do so with a commitment to our stakeholders who rely on us to develop new resources to ensure the world has the energy it needs". For Equinor, this is captured explicitly in their annual report when they emphasised that "we embarked on a new strategy for long-term growth – a strategy that will benefit our stakeholders and define the Equinor of tomorrow."

A company's ability to quickly identify major changes in the competitive landscape, reallocate resources to new courses of action and reconfigure existing organisational routines that support those actions will ultimately determine whether a company can achieve sustainability more quickly than its rivals (Nadkarni and Narayanan, 2007). This adaptive potential is known as strategic flexibility and refers to "a firm's willingness to redeploy and reconfigure its corporate capital, structures, and policies to tackle environmental change"(Zhou and Wu, 2010, p. 549). The analysed Oil and gas firms see sustainability as one of the factors demanding strategic flexibility to be effectively addressed. Thus, through constantly developing and recombining resources in new ways, strategic flexibility is perceived by the oil companies as a sustainability strategy that helps them to experiment with creativity, execute a larger range of innovative changes, mobilise resources for alternative purposes and increase the pace and extent to which it can respond to environmental changes (Cheng and Kesner, 1997).

It appears that European and American companies emphasise strategic flexibility as a sustainability strategy more than Asian companies. The underlying definition of strategic flexibility is the degree of independence for companies to do things differently in any way possible (Broekaert et al., 2016). As market environments are becoming more competitive and complex than ever, companies are continually forced to respond to changes in the environment (Grewal and Tansuhaj, 2001).

Evidence shows that expectations and demands for transition to a sustainable model is forcing significant improvements on businesses (Kolk, 2008) especially in the oil and gas industry. Addressing a corporate strategy that integrates three core dimensions (economic, environmental, and social) requires companies to move flexibly, adapting to changes in the environment and competitive landscape. Strategic flexibility is a well-developed management literature term that involves the capacity of an organisation to advantageously adjust approaches in response to internal or external market and strategic climate changes.

5.2. Sustainability target and goals

The aim of this segment was to identify the most common sustainability targets and goals adopted by the oil and gas companies. The targets and goals that were extracted from the annual reports and categorised were those mentioned by the companies as such or its equivalent and set at least for the years under review. The areas in which the companies have set sustainability targets and goals are varied, as shown in Table 4. The result in Table 4 shows that the level of targets and goals varies significantly across the Europe, America and Asia with the majority of the European companies emphasising achieving a climate change, energy transition, Paris agreement and technological level that aids their operations as their sustainability targets more than American and Asian companies.

A closer look at the content of each of the company's annual reports revealed that the companies described their sustainability targets and goals in different ways. Technologically, it appears that the European oil and gas industry lays more emphasis on developing technologies to help advance energy production to meet evolving energy needs and to help manage risks related to climate change than American and Asian companies. Levy and Kolk (2002) asserted that American firms have primarily invested their resources in technologies to protect their oil reserves and to defend their existing base of assets and competencies, while European firms have invested more resources in research efforts to shape the emerging climate change regime and to develop new low-carbon technologies and products. For instance, one of BP's strategic targets is to "pursue new opportunities to meet global energy needs using evolving technology. For Chevron, their target is "investing in future breakthrough technologies to pursue emerging energy frontiers." ExxonMobil is targeting "developing steam-cracker technology with the broadest feed range in the industry", and Equinor aims to "create amazing technology that unlocks access to energy for the benefit of all" while Shell's goal is to "drive research and innovation to develop new technology solutions". This emphasis on technological targets and goals indicates that oil and gas companies are making more attempts to address sustainability issues deploying state of the art facility in oil and gas exploration. Also evident from Table 4 is that oil and gas companies are advancing a low carbon future by drastically reducing carbon in their operations and production. BP has set a new ambition to become a net-zero company by 2050 or sooner. They aim to cut the carbon intensity of the products they sell. Similarly, Chevron aims to create more energy with fewer emissions while ExxonMobil aims to lower its global energy related emissions by 5% by 2040. The drive for setting lower emission targets could be due to increasingly stricter regulatory requirements and the various international and global agreements to reduce pollution. One of such agreements is the Paris agreement to avoid dangerous climate change by limiting global warming to below 2 degrees Celsius and pursuing efforts to limit it to 1.5 degree Celsius which was adopted at the Paris climate conference in December 2015.

The influence of the Paris agreement could be seen through the increased emphasis on achieving the aim of the treaty in the oil and gas companies' annual reports. BP categorically stated that they "will advocate for fundamental and rapid progress towards Paris agreement". Chevron set a "timeline of 2016–2023 to align its processes with the ratifications of the Paris agreement" while Shell also wholeheartedly support the goal of the Paris agreement. The 2015 Paris agreement which started to create awareness, ensuring technical and social awareness and offering assistance to global decision-makers on ways of achieving the new climate treaty coupled with the major catastrophe in the Gulf of Mexico in 2010 influenced a change in sustainability drive and added impetus to the transition to lower-carbon energy systems. This change seems to be had been sustained all the way to 2019. BP in recognition of the significance of energy transition as a target asserted their "commitment to be a leader in advancing energy transition and contributing to a lower-carbon future". Chevron's energy transition efforts prioritise lowering its carbon intensity while Schlumberger asserts that "to be leaders of the energy transition" is crucial to their ambition. Shell aims to meet the growing energy need by "continuing to invest in the energy transition". With the oil and gas industry being the second largest contributor to GHG emissions (Sueyoshi and Wang, 2014), a huge responsibility has been undertaken by the analysed oil companies to reduce emission particularly CO_2 by between 40 and 70% to zero levels and this they intend to do by transiting to an efficient energy production systems. Though, oil companies' investments in alternative energy sources may seem a drop in the bucket compared to their overall business, these investments may be significant enough to spur growth in the relatively new renewable energy industry. The oil companies however, may need to make significantly higher investments in renewable energy sources to truly make their businesses more sustainable, but that does not mean their current investments are entirely irresponsible. The steady emphasis on technology, climate change, energy transition and paris agreement reflects the global oil and gas industry commitment to focus their business on investing in alternative forms of energy while still maintaining their oil and natural gas business.

5.3. Dimensions of sustainability

This section attempts to understand the various dimensions and aspects of sustainability reported and emphasised upon by the oil and gas companies. Global climate change issues, unsustainable usage of natural resources and global recession are pushing businesses to rethink how they work. Many of them integrate the sustainability agenda into their activities, requiring monitoring of the TBL, i.e. fiscal, environmental and social performance (Dhiman, 2008). TBL was proposed by Elkington, who emphasised that sustainability's social and economic aspects need to be tackled in a more holistic way to make meaningful environmental change (Henriques and Richardson, 2013). It was revealed in Table 4 that 11.4% of the total coding addressed environmental dimension of the Triple Bottom Line (TBL) whereas 13.8% addressed the social dimension and only 15.5% addressed the economic sustainability dimension of the TBL. The remaining addressed sustainability targets and goals (14.9%), ethics, governance and policies (14.8%), supply chain (15.9%) and sustainability strategies (13.7%) respectively. For the companies analysed, emphasis on the economic dimension of sustainability outnumbered any other type of sustainability dimension and efforts. This is hardly surprising given that sustainability requires economic performance and the need to perpetuate existence in the natural environment. According to Carter and Rogers (2008b), sustainability microeconomic perspectives have been presented more often in research work than the macroeconomic perspectives. This may be attributed to the challenge in finding the best approach to address sustainability when different and oftentimes overlapping, problems need to be tackled at the same time.

The second most emphasised dimension is the dimensions that are reflective of the social aspects of sustainability and have persisted for a while now. This indicates that issues related to the economic and social aspects are some of the major preoccupations of the oil and gas companies and that they are making more attempt to address these aspects of sustainability as a higher proportion of the companies' annual report emphasised these dimensions more than the environmental dimension. The emphasis on the social and environmental aspect of sustainability can be attributed to the realisation that issues related to these

dimensions can easily damage brand reputation and sales (Seuring and Müller, 2008).

5.4. The environmental dimension

The environmental aspect is an essential consideration in the oil and gas industry as this aspect touches every stage of the industry, starting with production through consumption. The significant issues emphasised in the companies' annual reports were environmental impacts, focusing on renewables as a means of providing the cleaner energy that the world needs and climate change issues relating to emissions. Comparing the findings from 2010 to 2019 shows that the oil and gas industry's highest increase in emphasis is on the ecological system. In fact, literature shows that it is often the ability to achieve a competitive advantage that drives these companies to emphasise the environment aspect (Giménez Leal et al., 2003). The most commonly cited ecological metrics were electricity and water usage, and CO2 emissions. The annual reports appeared to highlight the crucial need to ensure proper water usage as well as the effect on biodiversity. Many of the companies outlined their environmental conservation programmes in a very comprehensive way. The companies have equally demonstrated an emphasis on the production and implementation of environmentally friendly products.

Among the companies, significant variations can be observed concerning their emphasis on the environmental aspect of sustainability. The coded data seems to suggest that European oil and gas companies report a lot of environmental sustainability aspects. On the other hand, Asian oil and gas companies lay lesser emphasis on environmental sustainability. The emphasis on environmental aspect by the European oil and gas companies have at its core the recognition of the dependence of all life forms on the natural environment and hence the need to ensure that the environment is sustained (Baliga et al., 2019).

On the environmental impact subcategory, the findings emerging from this study indicate that the analysed companies placed varying importance to their impacts on the environment. European oil and gas companies give relatively higher importance to the environmental impacts of its operations in comparison to American and Asian oil companies. Aalirezaei et al. (2018) suggests that the desire to meet government regulations and attain environmental standards in one hand, and the increasing demands of consumers to consume the environmentally friendly products on the other hand could be responsible for this varying emphasis across the three continents. Similarly, given that most oil and gas operations have a detrimental effect on the environment and the questions have always been what the oil and gas companies doing to reduce or minimise such impact. The coded data seems to indicate that the analysed companies are building up renewable energy portfolios with activities spanning renewable fuels and products, wind and solar energy and biopower. Again, European oil and gas companies with the highest number of the coded item on this sub-theme seem to be leading on the emphasis on this front, followed by Asian and American oil and gas companies who seem to pay less importance to the focus on renewables as part of their sustainability effort.

In a sense, the fact that most of the companies showed a high inclination to emphasise climate issues especially concerning emissions, environmental impacts of their activities and a focus on providing a cleaner source of energy using renewables is a reflection that both reducing emission and using renewable energy source are considered relatively critical with regard to environmental sustainability dimension in the oil and gas industry (Ahmad et al., 2017). This does not however prove that they have been moving their entire supply chain in a more sustainable direction. This demonstrates their awareness of emerging issues but not necessarily their adopting a course of action.

5.5. The social dimension

The companies' emphasis on the social aspects of sustainability manifests through various channels and efforts. These include community involvement, safety, employee engagement and human rights. The coded data distribution showed that the most substantial number of social sustainability aspects reported belongs to European oil and gas companies followed by Asian oil and gas companies. American oil and gas companies reported the least number of social sustainability aspects. This could be due to the notion by many businesses, particularly in North America, that the more they concentrate on social and environmental sustainability, the more economic sustainability will fail as a consequence of the costs incurred, this, therefore, explains the fewer focus on social sustainability aspects by the American oil and gas companies (Gray, 2006; Nidumolu et al., 2009).

In the social dimension subcategory, activities emphasis of community development was the most prevalent. This was closely followed by safety, health and workplace, employee engagement and human rights. Safety has been an issue most emphasised because companies want to be seen as a safe place to work yet each of the analysed company has many idiosyncrasies about what proper safety should be. Although the description of the activities varied, what is being described is often the same. For example, Shell stated that "safety remains our number one priority and one of our core values. Our aim is to have no accidents, no harm to people" while Chevron asserted that "we are committed to a culture of operational excellence that places the highest priority on process safety, the health and safety of our workforce". ExxonMobil, on the other hand, was of the view that "we retain our strong commitment to maintaining a safe work environment and have achieved an almost 80-percent reduction in our lost-time incident rate since 2000". Similarly, Sinopec emphasised that "the Sinopec SAFE program is a health, safety, and environment (HSE) campaign created to align the entire company on a unified and re-energised approach based on the four pillars of HSE: leadership, employee engagement, training and reporting, and compliance" and BP reported that "when it comes to safety, we have much more to do. We have responded by introducing a new approach alongside our continuing efforts to review and improve accident-prevention procedures wherever possible". These descriptions were identified as being of the same sustainability activity of improving safety which came under the social dimension.

European companies have the highest emphasis on safety in comparison to Asian companies. American oil and gas companies have the least emphasis on safety, health and workplace. The community involvement subcategory had significantly more coding associated with it than employee engagement and human rights indicating that the analysed companies believe that they can emphasise sustainability in more ways when considering community involvement than they do when considering employee engagement and human rights. However, the companies viewed employee engagement as deserving of more importance to their sustainability efforts than human rights. This is in line with Dey et al. (2011) position that a company's effort in implementing sustainability should be about meeting the expectations of the company while considering the operational impact on the community.

Comparing the data from 2010 to 2019 shows that the oil and gas industry' most crucial change in focus is linked to community engagement efforts. The most crucial focus of the companies was their commitment to local economic growth. A wide variety of projects conducted by these companies are tied to educational, athletic, and artistic events, as well as hospital contributions and other programmes to support the community and its residents. Hes (2017) opined that this could be due to the increasing importance that has been put on community engagement over the last 20 years to meet development targets, recently outlined in the UN's Sustainable Development Agenda among several of which is a focus on community involvement. While the industry acknowledged social sustainability related issues in their annual reports, their emerging roles on how this contributes to sustainability have distinct emphasis.

5.6. The economic dimension

For the economic dimensions of sustainability, five subcategories were identified, and these identified subcategories were coded two hundred and thirty (230) times for all the companies. The identified subcategory includes cost, energy demand, financial performance, market expansion and price volatility. The coded content for the economic dimension constituted 15.5% of the total coding in this study. This is a clear indication that the analysed companies place slightly lesser emphasis on social (13.8%) and environmental (11.4%) sustainability issues in their report. Among these, findings indicate that European oil companies with 103 of the coded contents on this category are the ones that emphasise the importance of the economic dimension of sustainability the most. American oil companies with 65 and their Asian counterparts with 62 follows in that order. This can be due to the difficulty of seeking the appropriate approach to addressing sustainability as issues tend to be resolved concurrently at various and sometimes conflicting periods (Carter and Rogers, 2008b).

The economic aspect of sustainability perceived to be of greater importance by the analysed companies seems to be energy demand with cost consideration being the least important. The primary motive of every oil company is to provide beneficial energy to consumers; hence the importance placed by a good number of the companies on energy demand and markets. Variations in the annual reports of the companies are noticeable depending on sub-theme they deem important. For instance, Asian companies view price volatility as the most important aspect of the economic dimension of sustainability in comparison to America; on the other hand, European oil, companies view market expansion, energy demand and financial performance as the most important aspect of economic sustainability when compared with Asian and American oil companies. Similarly, American companies see cost as the most important aspect when compared to European and Asian companies. The oil and gas industry emphasis on financial performance, costs and market expansion is an indication that while sustainability issues may seem increasingly important, the importance of financial performance drives business and sustainability efforts. Result of the evaluation revealed that there is an increased emphasis by the global oil and gas companies on energy demand and market expansion that encompass renewable energy and natural gas offerings in the last decade (2010–2019). This is critical not only because oil and gas reserves are limited, but most significantly, because the boost in energy demand will continue to rise (Wan Ahmad et al., 2016). In 2035, about 81 percent of the energy generation will come from fossil fuels. The environmental and social consequences of such resources being used irresponsibly and unsustainably explored may be catastrophic (Wan Ahmad et al., 2017). The oil and gas industries' focus on these would help reduce, if not eradicate, such negative effects, thus helping the sector to support itself economically and guarantee energy security.

5.7. Governance, ethics and policies

Interestingly, there was less emphasis by the analysed companies on this theme, indicating there is a more common lack of recognition across companies about what constitutes appropriate responsible, ethical behaviour and regulatory compliance. The coded data reveal that this theme account for 14.7% of the total coded content in this study. This evidence is intriguing since oil and gas companies generally enjoy the reputation of being ahead in terms of the rigour of ethical and regulatory compliance. The sub-theme for this category includes ethics and compliance, regulation and policy, certification and risk management. Given the number of indicators for the coded subcategory, it is revealed that most of the analysed companies placed more emphasis on ethical and compliance considerations more than risk management, certifications and policies and regulations. One plausible reason for this could be the nature of this industry – generally recognised for the environmental impact they have. Due to this, ethical compliance and requirement for sustainability policy formulation and regulatory compliance may be high on these companies in order to support the legitimacy of their operations. Among the companies, there is a varying emphasis on different aspects of sub-theme. Europe has the highest emphasis on ethics and compliance when compared with Asia, while Asian has the highest emphasis on policy and regulation when compared with America, with America having the lowest emphasis on risk management and certifications when compared to both Europe and Asia.

The analysed companies provided a relatively low emphasis on regulatory and policy compliance. Given the highly environmentally sensitive nature of this industry with the oil companies being flagrant environmental spoilers, they have not done enough to ensure that they are adequately addressing this issue and complying with regulations. Organisations that take the first procedure on the long march to prosperity usually begin from the law (Nidumolu et al., 2009). Compliance is complex and difficult: environmental regulations differ from country, state or province to city. In addition to legal standards, companies feel pressured to comply with voluntary codes — general ones, such as the Greenhouse Gas Protocol, and sector-specific codes, such as the Forest Stewardship Code and the Electronic Product Environmental Assessment Tool — which have been drawn up for the past 20 years by non-governmental agencies and industry groups. These standards are more stringent than the laws of most countries, especially when they pertain to transnational trade (Gray, 2006).

5.8. Supply chains

The coded data showed that sustainability aspects related to the analysed companies supply chain accounted for 15.9% of the total coded contents in this study. This indicates that the companies analysed do give as much importance to supply chain sustainability as they give to environmental (11.4%), social (13.8%) and economic (15.5%) aspects of sustainability. The sub-theme deemed as most important and thus most emphasised by the analysed oil and gas companies is customer relationship followed by logistics management and supplier relationship.

Variations in the emphasis by the companies on the various subthemes are not noticeable; however, European oil companies showed a higher inclination to emphasise on supplier relation and logistics while Asian companies showed a higher emphasis on customer relationship management. The higher emphasis, especially on customer relationship and supplier partnership by the oil and gas companies, may be attributed to the fact that oil companies are continuously trying to work with customers and suppliers to enhance sustainability practices. Also, it could be because while selecting suppliers; the oil companies consider their capabilities and commitment towards achieving supply chain sustainability and their impact on the triple bottom line. This is no more evident than in the statement by BP, where it asserts that "we take corrective sustainability action with suppliers and business partners that fail to meet our expectations, which may include terminating contracts". Although most of the oil companies across the three continents emphasised on the outbreak of the Coronavirus, they were quick to recognise that "even when the world is facing extraordinary events, with volatile markets and an evolving global pandemic, we cannot predict the future, we can do what we do best: provide the energy that society depends upon". This is a tacit acknowledgement that the pandemic posed a peculiar challenge to foretelling the future and that it is extremely premature to articulate its impact clearly.

6. Conclusion

This paper analysed annual reports of oil and gas companies for ten years to identify their sustainability focus and emphasis within this period. One hundred and fifty annuals report of fifteen oil and gas companies drawn across the three continents of Europe, America and Asia were identified and utilised in this research. The analysis revealed that in the studied period, European oil and gas companies placed more

emphasis on social, environmental and economic aspects of sustainability more than their American and Asian counterparts. Given the unsustainable nature of the oil and gas industry, this shows progress toward sustainability by the European oil and gas industry more than in Asia and America. Given the rising environmental and social concern by customers and society, the concerns raised on oil and gas companies' activities have intensified and this has started to undermine their reputations and earnings potential (Amini et al., 2018). Hence, most oil producers have begun to concentrate on sustainability in their annual reports and putting more emphasis on it. Findings show that oil companies pay considerable attention to disclosing sustainability practises in their annual reports. These findings indicate that these businesses are especially focused on incorporating the economic, social, environmental and supply chain aspects into their structure in order to effectively fulfil their commitment to sustainability. By doing so, they have demonstrated that they have adopted the core beliefs of the global business community or society at large, which demand substantial dedication and conformity to sustainability from them (Parker, 2005).

This trend is necessitated by the increasing awareness and regulatory pressure to implement sustainability measures in Europe, which has seen an increased number in the sustainability focus and emphasis in their annual reports. As indicated by the results in this research, focus and emphasis on sustainability in the oil industry across the three continents are on the upswing; while this sustainability focus seems to have dramatically enhanced sustainability recorded in the industry, it seems like there is still a lot to be achieved for the idea to be internalised by businesses in their activities and incorporated into the core triple bottom line especially in America and Asia. There is a need to adopt an industry viewpoint and introduce sector-wide strategies that lead to fundamental transformation along with sustainability focus that would enable an industry paradigm shift across the three continents (De Brito et al., 2008). For example, oil and gas companies could integrate their sustainability behaviours into a single sector-specific framework and develop an overarching set of principles of sustainability. This will not only be essential to provide consistent and coherent sustainability compliance for present and prospective oil and gas companies in all countries, but it would also assist in resolving the challenges necessitated by the disorganised nature of contemporary sustainability reported in the oil and gas companies ' annual reports. In the long term, growing focus on sustainability emphasis among oil and gas players will also aid in the transition to a sustainability model (Pookulangara and Shephard, 2013) and spread the core concept of sustainability to all stakeholders involved.

7. Limitations and future research suggestion

Although this study was rigorously completed, some limitations were encountered, but these limitations provided opportunities for further research. Even though several processes were involved in the validation of the content analysis of this study's sample, the categorisation of these annual reports remains interpretative and hence subjective. Further statistical method could be employed to cluster the sample and analyse the different categories. Also, only a limited number of annual reports were examined due to availability and time constraint. Obviously, a higher number of analysed annual reports would increase the study's credibility. However, the research sample seems fully representative. Similarly, the analysed reports came from companies active in different countries and continents and of different sizes, even though they are in the same industry. This number of countries and continents posed a limitation. Despite their number meeting the methods requirement, its increase would allow for obtaining additional insight and views. Further studies should increase the number of continents and analyse the relationship between the countries in terms of their sustainability focus.

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Intellectual property

I confirm that I have given due consideration to the protection of intellectual property associated with this work and that there are no impediments to publication, including the timing of publication, with respect to intellectual property. In so doing, I confirm that I have followed the regulations of our institutions concerning intellectual property.

Research ethics

I further confirm that all procedures followed in this manuscript have been conducted with all relevant bodies' ethical approval and that such approvals are acknowledged within the manuscript. Also, this manuscript does not contain any studies with animal subjects performed by the author.

Authorship

I confirm that the manuscript has been prepared, read and approved by me and that I am equally the corresponding author.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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