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CONNECTING STRATEGY, ENVIRONMENTAL AND SOCIAL INDICATORS: A STUDY OF OIL AND GAS PRODUCERS

This paper studies the integration of social and environmental objectives into strategy through performance indicators based on a sample of multinational world-leading oil- and gas producers. Also, we inquire if the companies under study, which identify certain areas as strategic objectives, do better than their peers. We show that top management of the companies did indeed identify different areas of interest, had different strategic foci, and used different performance indicators. This is often explicable through a company's own history and past experiences. When comparing a sample of greenhouse gas emissions, safety measures, and energy efficiency indicators between the different companies, we could not identify a consistent development over time trends. In fact, some did worse over time and collective improvements were largely absent. We suggest further research into the link between strategic objectives and a company's relative position in industry.

Key words: indicator, environmental protection, oil- and gas producers, energy efficiency, resource availability

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Introduction

Shifting towards a sustainable mode of production involves the alignment of a great number of actors. Only through agreement and a combined effort can societal challenges like global warming or declining bio-diversity successfully be addressed. Although business is only one part of the society-wide partnership including consumers, policy makers, its role in emission production is indicative for the whole consumption of commodities.

Oil and gas production is by itself very resource consuming and the cause of grave environmental dangers. Few industries make such extensive use of natural resources combined with a potentially significant negative impact on the environment. Also, production processes are seen as hazardous to workers (e.g. Selmer–Olsen, 2002). Particularly the public opinion is to a large extent shaped by memories of Armageddon-style disasters like the sinking of the Exxon Valdez, or the recent oil spill in the Gulf of Mexico. These large-scale multinational companies were among the earliest adopters of green paradigms and showed support for sustainable development. Also, oil and gas producers were pivotal in introducing new technologies and innovations to limit their own energy consumption but also to become cleaner and more socially engaged.

The activities of companies towards sustainable business management[9] have closely been followed by the academic community (e.g. Ahmed et al., 1998; Azzone et al., 1997; Ghobadian et al., 1995; Magrini and dos Santos Lins, 2007). Of particular interest here is the integration of social and environmental limits into the paradigm of profit maximization – often studied through a company's strategic planning. Rowlands (2000) identified differences in the management structures for strategy decisions in the case of Exxon and BP Amoco. When studying Shell's environmental disclosure, Livesey (2002b) identified a generally negative view of regulation and its construction of business as apolitical. Exxon also interpreted the drive for sustainable development and the increase of social concerns as irrational and largely political in nature (Livesey, 2002a). The studies suggest how easily traditional business understandings can collide with strong green eco-centric business beliefs.

Meanwhile, the world's oil and gas producers have incorporated environmental values, and authors like van de Wateringen (2005) advocate that environmental logic has in fact been implemented into strategic considerations. In other words, management have adopted environmental values in their policies, which consequently translates into procedural dimensions like performance and outcome measures. Firms identified a number of measures to track their path towards the greening of production. Due to the difficulties associated with the use of complex assessment approaches like the Life Cycle Assessment, most firms revert back to a chosen set of performance indicators. Over the years, a large number of such indicators have been applied to oil and gas producers. So far, the development of indicators has been heavily studied and compared (see, for example, Azapagic, 2004; Elkington, 1998; Parker, 2011; Figge, 2002; Nordheim and Barrasso, 2007; Searcy et al., 2007; Veleva and Ellenbecker, 2001). However, research on companies' assessment of their way to sustainability based on indicators

[9] Roome (1992): management of business that recognizes its embeddedness in social, environmental and economic systems, and focuses on management and relationships to meet the environmental, social, and economic requirements of many different stakeholders in its networks.

remains scarce. While the incorporation of environmental values into a company's strategy have been well researched, there are still substantial gaps in the use of indicators.

Sustainability indicators are based on measured and/or estimated data that have to be normalized, scaled and aggregated consistently. Linke et al. (2013) studied the available information on site-level environmental performance and found great differences between firms. While BP used site-level environmental reports, Shell limited site-level reports to particular 'hot spots'. Linke et al. (2013) revealed large variations in the environmental performance of different refineries. For example, the values of sulphur dioxide and benzene varied by factors of 7.4 and 7.3, respectively. Hence, the authors conclude that direct comparisons between different firms are impossible due to the absence of corporate reporting standards that would ensure comparable site-level emissions data. Also, they point out a number of reliability issues regarding the quality and scope of the data.

These findings raise the question whether all data collected and presented in their reports are unsuitable for further application. Is it a mere public relation tool, with no use for comparison? This question is even more interesting as previous research failed to establish a link between governance or financial performance with environmental measures.

Literature review

Oil and gas companies were among the first to implement social and environmental performance indicators into their accounting and reporting practices (Datamonitor, 2010; Gstraunthaler, 2010; Arscott, 2004). Some authors argue that their attempts to 'green' production were driven by cost-saving opportunities and ways to improve their reputation (Saha and Darnton, 2005). Skjærseth (2005) and Skjærseth and Skodvin (2001) studied the pro-active stance Shell, a Dutch company, took towards climate change and compared it against ExxonMobil's rather reactive strategy towards the greening of production. In a similar vain, Thurner and Proskuryakova (2013) suggest that management considerations were the main driving force for Russian oil and gas producers to invest into green production technologies. Others assume pressure from outside parties like NGOs, consumers, or politicians as the true reason for companies to comply (or create the notion of compliance). One of the earliest events of successful lobbying happened in spring 1995, when Greenpeace clashed with Shell of its plans to dump its oil storage platform, Brent Spar.

Companies integrate the economic, social and environmental components into strategic priorities, and adhere to them in their dealings with suppliers and customers (e.g. Fischer, 2009; Godfrey and Hatch, 2007; Hill et al., 2007). Beside efficiency considerations, it is the public image that has been of great importance to companies. Since the beginning of research on company voluntary greening projects, there has also been a great awareness of the legitimacy that such projects provided to companies (Yaziji, 2004; Deegan, 2002; Miles and Covin, 2000; Toms, 2002).

Such considerations receive special attention when studying the often excessive corporate reporting on social and environmental activities. However, the findings on environmental and social disclosure and their link to corporate performance are thus far inconclusive. Previous research failed to establish a link between disclosure and company performance (e.g. Freedman and Stagliano, 2008). Also, good governance indicators and pollution performance seem

unrelated. From a financial perspective, the findings are inconclusive, too. While studies suggest that profit orientation can lead to better environmental performance and disclosure (e.g. Clarkson, Li, and Richardson, 2004), others believe that firms may not financially benefit from better environmental performance and see environmental disclosure as a strategic action to manipulate public opinion (e.g. Patten, 2002).

The number of corporations reporting on their initiatives has grown significantly. In general, corporate sustainability reporting contains a mixture of qualitative and quantitative information designed to communicate the progress of a company. The focus rests on economic, environmental and social effectiveness, and efficiency together with its integration into a sustainability management system (Daub, 2007). In most jurisdictions the reporting is voluntary, so companies chose different wordings and different formats (Davis and Searcy, 2010). There are, of course, numerous reporting guidelines, most notably the Global Reporting Initiative (GRI), which since the 1990s has been working on developing "soft" standards (recommended but not obligatory for companies). The very first GRI standard "Sustainability Reporting Guidelines" (Global Reporting Initiative, 2002) published in 2002 recognized the principle of combining three components into the reporting requirements, including environmental impact and social policy (Kleine and Hauff, 2009). G4, the latest version, was updated in 2013.

The more accounting-orientated literature has criticized the very high degree of freedom in the compilation of such data sets. Moneva et al. (2006) for example note the confusion over the scope of certain indicators, the lack of universal requirements for independent verification, and selective reporting on the basis of performance indicators. These variations have mostly been attributed to the absence of a universally accepted definition of sustainable development in corporate practice (Bansal, 2002).

Very recent works on the driving force towards sustainable business management show a much more proactive approach and shift the attention away from mere compliance to the creation of competitive advantages. In their study on Russian oil- and gas producers, Thurner and Proskuryakova (2013) show that early adopters of green management are driven by their very own management's initiatives, seeking competitive advantages, while the late followers comply with the minimal standards as required by law. The competitive advantages companies aim to gain go beyond the simple reduction of cost or image improvement. They consist of value-adding, costly to copy firm resources, and capabilities as key sources of sustainable competitive advantage (Barney, 1991; Reed and DeFillippi, 1990). Given the increasing amount of ecological problems, identifying and acquiring such capabilities in green production technologies open up the way for future competitive advantages, provided that the advantage is protected by "barriers to imitation" (Rumelt, 1984; Teece, 1987; Winter, 1987). Still, the oil- and gas producing industry as such has not received much attention from management scholars, which is surprising given the global importance of the industry. Some insightful case studies are noteworthy exceptions (e.g. Magrini, Luiz dos Santos Lin, 2007).

Aim of the paper

Sustainable business management at corporate level implies a long-term strategy and a corresponding selection of indicators for its implementation (Heikkurinen and Bonnedahl, 2013). The lack of standardization however allows companies to report freely what they deem important

in the communication with their stakeholders. Here, we identify the often criticized freedom of choice as a great strength to choose freely which data material really stresses best one's own business activities. Companies choose indicators to measure their own success towards their identified targets. As companies enjoy a great degree of freedom in reporting environmental and social issues, we suppose that companies will focus their reporting on areas in which they have a position of absolute and relative strength. Predominantly, we are interested to see if the foci of top management correspond with the company's position relative to its peers. Hence, in our first research question we ask which measures companies choose and how these measures link up with the companies' own strategic objectives.

Also, environmental and social performance indicators capture the current performance and allow the comparison against the target set by its top management. The aggregated information can also be used for benchmark exercises and as such is indicative of how the industry turns towards green production. Although we agree with earlier arguments regarding aggregated data, we see information value in comparing the development of indicators over time. Our second aim is to study alternative ways of using aggregated data in industry comparisons.

Method

Our analysis starts by looking into the communications of top management to their stakeholders and searching for their most prominent environmental and social strategic objectives. Subsequently, we ask which key figures and performance indicators top management chooses to measure and communicate achievements. Then, we combine the most identified indicators into an industry benchmark to see how the different companies perform over the duration of the study in relation to each other.

In this paper, we study a selection of the world's leading oil- and gas producers by turnover and employees. The data was extracted from their annual reports and environmental reports from the years 2009 to 2012. Hence, the data available refers to the years 2008-2011. Annual reports of oil- and gas producers are extensive, consisting of up to 300 pages and written for audiences other than the content analysts (Bowman, 1984), which makes them a valuable source of study. Content analysis focuses on codification of the text into selected criteria (Weber, 1988) to achieve replicable and valid inferences from data according to context (Krippendorff, 1980). Previously, authors like Bowman (1984) used content analysis of annual reports to explore companies in the food processing industry, the peripheral computer industry, or the container industry.

Data

In the following section we present excerpts from companies' strategic objectives as indicated in the CEO's address in the annual report or the environmental report. We also show which indicators the company has chosen to measure progress on these strategic targets.

1. British Petroleum

British Petroleum (BP) currently has over 85,000 employees and generates over USD 375,765 million through sales and other operating revenues.

The chairman in its annual report of 2011 stresses the company's goal to take a leading position in sustainable development in the industry. Acknowledging the challenges of unsustainable usage of resources all over the production system, the chairman of the board mentions greenhouse gas emissions as one of the problems to tackle:

> *We aim to be an industry leader in these kinds of developments, demonstrating high standards of environmental stewardship and social responsibility…*
>
> *From such a perspective, managing the emission of greenhouse gases is but one facet of a multifaceted problem.*

The consolidation of the company after the Gulf Coast incident is the most prominent area reflected in BP's mission statement:

> *BP's mission for 2011 and beyond is to grow value for our shareholders in a way that is safe and sustainable. 2011 will be a year of consolidation in which we focus on our number one priority – safety – and strengthen the drivers of long-term performance, such as risk management, capability and relationships.*
>
> *We strive to be a safety leader in our industry, a world-class operator, a responsible corporate citizen and a good employer. Safety and risk-awareness for environmental hazards and strives to become a 'safer, more risk-aware business'.*

In the research period, BP Safety Advisor, Jon Parker, explained their core value of safety even on US television. In accordance with the company's focus on becoming the safety leader in the oil- and gas industry, below we present the identified core indicators.

BP Indicators
Number of oil spills – to land and water
Volume of oil spilled (million litres)
Volume of oil unrecovered (million litres)
Direct carbon dioxide (CO2) (million tons (Mt)
Indirect carbon dioxide (CO2) (Mte)
Direct methane (Mte)
Direct greenhouse gas (GHG) emissions (Mte CO2)
Flaring (E&P) (thousand tons (kt of hydrocarbons)
Customer emissions (Mte CO2)
Environmental and safety fines ($ million)
Environmental expenditure ($ million)

2. Chevron

Chevron has 58,000 employees and generates a net income of $26.2 billion on sales, and other operating revenues of USD 231 billion. Chevron is proud of its excellence in preventing work-related incidents as the CEO states in his address:

> *I am committed to meeting our world-class standards in safety and operational excellence, and I know that the men and women of Chevron join me in that commitment.*

These efforts are guided by our Operational Excellence Management System, which aligns with international standards for safety and environmental performance and drives extensive use of tools — such as stop-work authority, by which every employee and contractor has the right and responsibility to stop work when noticing an unsafe act or condition; our Environmental, Social and Health Impact Assessment. We continue to be an industry leader in personal safety, as measured by injuries requiring time away from work. And in 2012, we delivered our lowest spill volumes ever.

Chevron's focus on social issues includes mentioning local communities and the issue of HIV-AIDS. Also, Chevron mentions their efforts to limit their emissions:

In 2010, our total emissions were 59.2 million metric tons of CO2 equivalent, exceeding our goal of 59.0 million metric tons. …Our GHG emissions intensity in 2010 was approximately 33 metric tons of CO2 equivalent per 1,000 barrels of net oil-equivalent production from our upstream operations, up from 32 metric tons in 2009.

And their rate of recycling of waste:

In 2009, we began reporting a total waste metric to track the amount of total hazardous and nonhazardous waste that is recycled (which includes reused and recovered) from our operations. In 2010, total recycling was 59 percent of generated hazardous waste and 42 percent of generated nonhazardous waste.

The same focus on reducing GHG emissions can be seen in their choice of indicators.

Chevron Indicators
- GHG Emissions by Source - Millions of metric tons of CO2 equivalent - GHG Emissions by Sector - Millions of metric tons of CO2 equivalent - Total GHG Emissions by Type - Millions of metric tons of CO2 equivalent - Energy Efficiency Performance - Percentage improvement since 1992 baseline - Air Emissions - Metric tons - Air Emissions by Sector - Metric tons - Average Oil Concentration in Discharges to Water - Parts per million - Petroleum Spills - Volume in barrels - Petroleum Spills - Number of spills - Fines and Settlements - Environmental, Health and Safety, Fines and Settlements

3. ExxonMobil

ExxonMobil currently has around 77, 000 employees and generates USD 45 billion on sales and USD 453,123 billion with other operating revenues. For ExxonMobil, the experience from the Deepwater Horizon incident offers a rich source of learning. Their activities focus on infrastructure upgrades and special programs at the sites with the highest spill rates. Waste generation and recycling is also mentioned as a major area of interest, together with protected wildlife habitats and conservation areas.

Central to our strengths and competitive advantages is a steadfast commitment to operate with the highest standards of ethical behaviour and corporate citizenship. First and foremost, we are dedicated to the safety of our employees and the public at all times.

ExxonMobil Indicators
• Marine vessel spills (owned and long-term leased), number of hydrocarbon spills > 1 barrel • Other spills (not from marine vessels), number of oil, chemical, and drilling fluid spills > 1 barrel • Hydrocarbons spilled (oil spilled), thousands of barrels • Other spills, thousands of barrels • Controlled hydrocarbon discharges to water, thousands of metric tons • Sulphur dioxide (SO2) emitted, millions of metric tons • Nitrogen oxides (NOx) emitted, millions of metric tons • Volatile organic compounds (VOCs) emitted, millions of metric tons • VOCs emitted, metric tons per 100 metric tons of throughput or production: • Total hazardous waste disposed from operations, millions of metric tons • Environmental expenditures, billions of dollars

4. Gazprom

The strategic mission of Gazprom is to become a leader among global energy companies by entering new markets and diversifying its activities. Very important is the increase in efficiency through strengthening their scientific and technological capacity. The company generated 4,637,090 mil RUB in net sales and 1,656,843 mil RUB in sales profit and employs around 393,000 employees. Most prominently, Gazprom attempts to raise energy efficiency and to close the technology gap with many other producers.

Gazprom continues to broaden the practical use of the most progressive or so called "best available" technologies for development and implementation of gas production and transmission projects, which ensures the environmental security and energy efficiency of the company's production complexes.

The complex approach towards the efficient use of natural resources and environmental security enables Gazprom Group to achieve its environmental targets, minimize environmental risks and the corporate social responsibility.

Indicators Gazprom
Energy Efficiency Performance by source Air pollutant emissions, Thousands of metric tons GHG emissions, Millions of metric tons of CO2 equivalent Water consumption, Millions of cubic meters tons of CO2 equivalent Waste volumes - Thousands of metric tons Structure of disturbed lands - %

5. Royal Dutch Shell

Shell employs around 87,000 staff and have a $26.8 billion income based on revenues of $467.2 billion. Shell stresses the role of their own R&D department in the creation of the technologies needed to use energy resources more efficiently. Their own R&D also plays a vital role in the development of alternative energies, carbon capture and storage, and on CO2 reduction. Shell recognizes in its address to the shareholders its exploration activities in new geographic areas like Alaska. Due to previous negative experiences, Shell wants to pay increased attention to unintended consequences of their action.

> *As more accessible resources are depleted, those in challenging environments will be essential in meeting global energy demand in the decades ahead. In 2012, we took the first steps in exploring for new resources off the coast of Alaska. Later events involving our drilling ships were most regrettable. We have since decided to pause exploration drilling in 2013, to prepare plans and equipment for activity at a later stage. Alaska remains an area of high potential for Shell in the long term. We will learn lessons from our experience, and continue to explore for resources there in a careful and measured way.*

From the 1970 onwards, conflicts arose between the native Ogoni people of the Niger Delta and Shell about improper payment, but also about the environmental damage done to their lands due to oil spills, etc. The most prominent accident occurred in 1970 and polluted 255 hectares of the Ejama-Ebubu community. The cause of the local population was put forward by charismatic leaders like Ken Saro-Wiwa later executed by the Nigerian government. The experiences of Shell are also reflected in its indicators.

Indicators Shell
• Direct greenhouse gas emissions (GHGs) • Flaring • Energy intensity • Acid gases and VOCs • Ozone-depleting emissions • Spills and discharges - Sabotage spills – volume (thousand tons) - Sabotage spills – number - Operational spills – volume (thousand tons) • Nigeria • Rest of world - Operational spills – number • Nigeria • Rest of world • Hurricane spills – volume (thousand tons) • Oil in effluents to surface environment (thousand tons) • Fresh water use • Fresh water use (million cubic metres)

- Waste disposal
- Hazardous (thousand tons)
- Non-hazardous (thousand tons)
- Total waste (thousand tons)

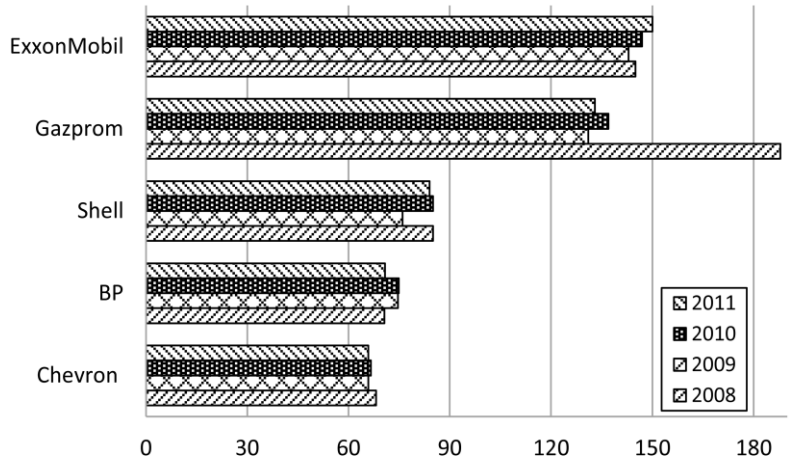
Industry benchmarks

In a next step, we compare the identified focus areas of the individual companies and aggregate the collected data into an industry benchmark system. Most companies indicated fines due to misconduct. However, as already identified, these numbers are impossible to compare as they occur in different countries and jurisdictions. Also, comparing oil spills is difficult as this number takes on extreme values caused by one-time accidents. We therefore benchmarked the individual companies in these three indicators: Greenhouse gas emissions in CO2 equivalents (Radermacher, 1999; Dragomir, 2012), reported work-related accidents as a measure for safety (Divine and Hartman, 2000), and energy efficiency as a measure of operational sophistication.

The analysis is based on absolute and relative values and its growth rates from 2008–2011.

Greenhouse gas emissions

Figure 1. Comparative analysis of major oil and gas companies' greenhouse gases emissions into the atmosphere, in CO2 equivalents, in 2008–2011 (million tons).

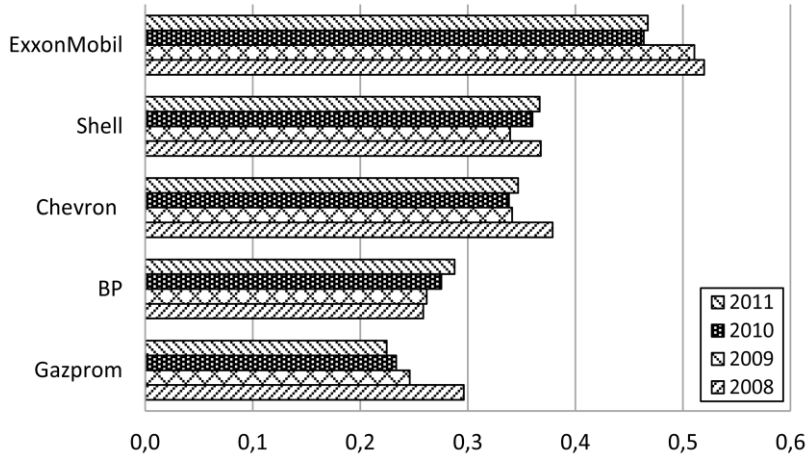


Source: companies' annual reports (2008–2011).

Reducing GHG emissions was a factor mostly identified by the companies as a strategic objective. What is striking is that the level of emissions during the years of observation was not really reduced. Various companies in fact reported increased levels of GHG emissions. Gazprom's pollution level in 2008 stands out, but was reduced significantly in the next year due to technological upgrades. ExxonMobil reported the highest levels.

In the next step we put the greenhouse gases emissions in CO2 equivalents (absolute values) in relation to the scale of their operations by the amount of CO2 emissions per unit of hydrocarbons production — as an environmental indicator. The results are presented in Figure 2.

Figure 2. Comparative analysis of greenhouse gases emissions by major oil and gas companies in 2008–2011 per ton of hydrocarbons produced (in equivalent fuel, tons per ton of equivalent fuel).



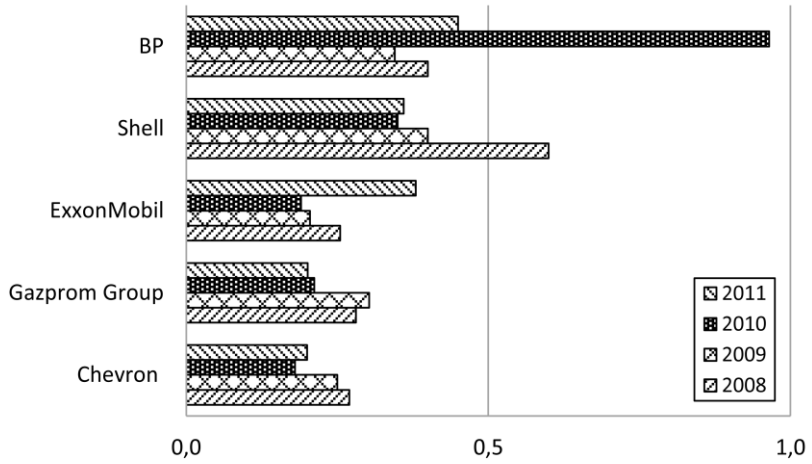
Source: companies' annual reports (2008–2011).

Also in this measure, ExxonMobil was the company with the highest levels of emissions in CO2 equivalents per ton of hydrocarbons (average specific volume of CO2 emissions > 0.3 tons per ton of equivalent fuel). In 2011 their emissions volume per ton of equivalent fuel was reduced by 10% compared with 2008, and amounted to 0.47 tons per ton of equivalent fuel. Interestingly, ExxonMobil has not really identified this reduction as an objective. A similar strong decrease in GHG emissions is also evident for Gazprom. For Chevron, the volume of GHG emissions per unit of production dropped during 2008–2011 from 0.38 to 0.35 tons per ton of equivalent fuel. We could not see a reduction of GHG emissions during 2008–2011 for the other companies even after adjusting to their hydrocarbons production volume. The analysis of annual growth rates of greenhouse gas emissions during 2008–2011 compared with absolute values of specific emission volumes in CO2 equivalents per ton of hydrocarbons produced (expressed in equivalent fuel), reveals a sharply fluctuating annual growth rate.

Safety

Previous research already utilized the number of accidents leading to disability (breakdowns, disasters, work–related injuries, etc.) per million working hours as an indicator to measure safety at work (Divine and Hartman, 2000). This indicator allows an assessment of the overall safety of working conditions and reliability of production facilities. The differentiation by severity of accidents, their scale, and impact on company operations and employees' health was not considered due to insufficient statistics provided by the companies. Figure 3 below shows the distribution of the companies under consideration regarding the number of accidents leading to temporary disability per million working hours from 2008–2011.

Figure 3. Comparative analysis by number of accidents leading to temporary disability per 1 million working hours in 2008–2011 (accidents / million working hours)



Source: companies' annual reports (2008–2011).

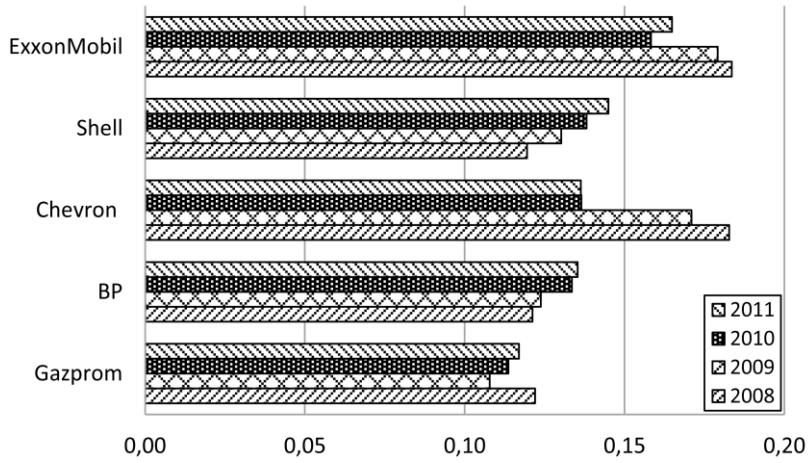
The surge in the number of accidents at BP in 2010 was the consequences of a larger accident. Other years, the company on average showed 0.4 accidents per million working hours. Shell's statistics illustrated a trend towards decreasing the specific work–related injury rate on average by 29% in 2009–2011. This is interesting, as Shell has not identified work safety as core interest.

Chevron, Gazprom and ExxonMobil on average reported 0.25 accidents per million working hours. In 2008 Gazprom Group had 0.28 work–related injuries leading to disability per million working hours. Despite the fact that in 2009 this value increased, by 2011 the company managed to reduce it to 0.20 accidents per million hours (a 40% decrease), on par with Chevron. In 2008 Chevron had 0.27 work–related injuries leading to disability per million working hours, but the company managed to significantly decrease it by 2011 to 0.20 (a 35% decrease). On the whole, the companies under consideration showed a downward trend regarding the number of accidents leading to disability per million working hours. For certain companies, annual dynamics of this indicator reveal inconsistent trends. All companies except Gazprom Group showed a decrease of this indicator from 2008 to 2009. Comparing 2010 with the previous year, this trend held for all companies but BP. However, in 2011 all companies except BP and Gazprom Group worsened their statistics with respect to the number of accidents. Although Chevron and ExxonMobil identified the reduction of work-related accidents as a focus area, both companies show an increase of this indicator from 2010 to 2011.

Among the indicators of production efficiency, the efficient use of energy is central for the sustainable development of oil and gas companies. Energy efficiency is usually measured by power input to hydrocarbon production (in equivalent fuel). This indicator allows an assessment of the level and the dynamics of companies' energy efficiency, and is primarily determined by application of innovations, both technological and organisational. All other conditions being equal, this indicator also describes the state of companies' capital assets, and their technological development level (Bunsea et al., 2011).

We calculated the indicator based on estimates of their overall energy consumption in sustainability reports, together with data from the Carbon Disclosure Project (2008–2012) (in the scope of this project, major international companies active in various industries voluntarily submitted information on their greenhouse gases emissions and energy consumption). The results obtained in the course of the research are presented in Figure 4 below. A low value indicates low levels of energy use.

Figure 4. Comparative analysis of major oil and gas companies' energy inputs per unit of resource output in 2008–2011 (million tons of equivalent fuel per million tons of equivalent fuel)



Source: companies' annual reports (2008–2011).

The obtained results show the improvements that ExxonMobil, Chevron and Gazprom have achieved. Although Gazprom has focused increasingly on energy efficiency and has achieved improvements, they appear relatively minor. Also noteworthy is the decrease of the industrial average value of the indicator – which suggests that major oil and gas companies devote significant attention to the challenge of increasing their energy efficiency.

Conclusion

This paper set out to study how chosen performance indicators correspond to strategic social and environmental objectives of oil- and gas producers. Also, this paper inquired if companies, which identify certain areas as strategic objectives, do better than their peers.

We showed that top management of companies in our sample did indeed identify different areas of interest and that companies showed variations in their choice of performance indicators to measure own progress. The differences are the result of - among other reasons - a company's own history and past experiences. Most importantly, previous critical incidents from natural disasters were most visible in the social and environmental performance measurement.

Most companies have focused on greenhouse gas emissions, safety measures, and increasing energy efficiency. Although every company reported excessively on their activities to lower GHG emissions, the industry benchmarking activities showed that many companies in fact did

worse over time. Even on an industry level, collective improvements were largely absent. Also when we compared the outcomes of these companies, which identified a certain objective as of strategic interest, we barely saw better performance over their peers. We find this interesting, as it seems that companies pick their focus areas independently from their relative strengths. Also, it seems that green technologies are not applied to generate a specific advantage over others, but instead the industry has kept most indicators stable. This could very well be the starting point for attempts to improve one's position and to reach a leading position in the near future. Still, we found that actors who did worse than their peers did not include this into their strategic objectives.

Acknowledging the limited factual use of the information indicated in individual reports, this paper suggests using the aggregated analyses to see how industry is changing and where strengths and weaknesses are. Areas with little improvement could very well indicate areas with little technological development or the dominance of expensive technologies.

This paper tapped into an interesting area for scholars in organizational development and leadership to better understand the influence of top management when a company tries to 'go green'. Future research could study how top management identifies such areas of future excellence in social and environmental terms. On the other hand, companies could also respond to external pressure. Certain events or activities can very well attract the public attention to certain aspects of oil- and gas producers, which might feel compelled to address these demands in their company reporting – maybe even in the absence of actual improvements. As such, institutional researchers would find a very rich area of activities here.

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