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Developing a sustainable balanced scorecard for the oil and gas sector

Abstract

The oil and gas sector is one of the key players in the South African economy; however, South Africa is also regarded as the foremost polluter in Africa. The main objective of the study was to develop a sustainable balanced scorecard (SBSC) that addresses the needs of the South African oil and gas sector. The research approach followed was supported by the application of content analysis of the integrated reports of JSE-listed oil and gas companies. The theoretical concepts of sustainability, integrated reporting and the balanced scorecard (BSC) are used to establish the overall theoretical framework of this study. It was found that selected oil and gas companies include sustainability issues in their integrated reports, but with a specific focus on social aspects. It is recommended that these indicators, together with the GRI sector supplement, should be incorporated with the conventional balanced scorecard measurements to ensure that sustainability is linked to the financial and overall objectives of the company.

Keywords: sustainability, integrated reporting, oil and gas sector, GRI, balanced scorecard.
JEL Classification: Q56, M40.

Introduction

South Africa, as a developing economy, officially became a member of the BRICS (Brazil, Russia, India, China and South Africa) countries in 2010 by virtue of its vast natural resources, established corporate footprints, culture of innovation and easy access to business relations into the African continent (Pinto, 2012). Research undertaken by the Cambridge University Program for Sustainability Leadership indicated that South African companies scored the highest on corporate reporting when compared to the other BRICS countries. A case in point is found at the South African-based Johannesburg Stock Exchange Ltd (JSE), which became the first global stock exchange to require listed companies to integrate sustainability reporting aspects with their annual report (Gibbons et al., 2010). With this integrated reporting requirement, South Africa became recognized as one of the global leaders in reporting on corporate sustainability and responsibility aspects (King, 2013). Notwithstanding, research found that organizations often fail to effectively integrate non-financial measurements with their financial performance reporting (Caraiani et al., 2012; Holmes, 2012; Tilley, 2012). The Balanced Scorecard (BSC) is a performance measurement tool that can be used to measure both financial and non-financial performance. However, integrating sustainability development with the BSC approach is still at an early stage (Ricart et al., 2005). Fakoya (2013) further recommends the development of an all-embracing sustainability approach by South African organizations as a way to limit negative environmental impacts.

The number of oil spills and the impact of oil and gas companies' operations on climate change have increased both investors and the general public's awareness of such companies' sustainability practices. Therefore, as this sector has been identified as the world's most polluting industry, sustainability concerns have become increasingly important over the last number of years (IPIECA, 2013). Furthermore, South Africa is Africa's foremost polluter and the country's natural environment has, over the past 20 years, deteriorated faster than most countries (Pinto, 2012). Nevertheless, the oil and gas sector is also one of the key players in the South African economy, manufacturing more than 90% of South Africa's petroleum products, supporting employment for over 100 000 people and selling approximately 24.9 billion litres of petroleum products annually (SAPIA, 2013). One of the greatest challenges for the oil and gas sector remains the continuous development of products that are both environmentally and socially responsible, while simultaneously contributing to global economic and social development (IPIECA, 2013). The Global Reporting Initiative (GRI), a non-profit organization, created a set of sustainability guidelines that can be used to measure and manage organizational sustainability. In 2010, the oil and gas sector was the sector with the second most report submissions to the GRI. The GRI also announced that as from 31 December 2012, all GRI reports published by organizations in the oil and gas sector are required to use the oil and gas sector supplement that addresses specific sustainability issues in the industry.

As indicated above, the measurement of sustainability is becoming a global corporate imperative, including for South African oil and gas companies. The questions can therefore be asked as to 1) what sustainability performance measurements do South African oil and gas companies currently use in their integrated report, and 2) whether such measurements,combined with the principles of the GRI

framework, can be used to develop a *sustainable balanced scorecard* (SBSC) to promote sustainability initiatives and efforts that effectively link with the corporate goals and objectives? The main objective of the study is therefore to develop an SBSC that addresses the needs of the oil and gas sector.

An opportunity exists for research focusing on the measurement, reporting and ultimately the enhancement of sustainability in the South African *oil and gas sector*. This is highlighted by reviewing previous research conducted, which identified the knowledge gap. A recent study conducted by Rabbani et al. (2014) on oil-producing companies in Iran proposed a new integrated model based on the SBSC and multi-criteria decision-making for the evaluation of performance. A number of other research studies considered the use of an SBSC within various other industries (Haung et al., 2014; Möller & Schaltegger, 2013; Rohm and Montgomery, 2011; Jones, 2011; Figge et al., 2002). However, no study could be found that evaluated the use of the SBSC within the South African oil and gas sector.

The remainder of the paper is organized as follows: firstly, the theoretical framework in which the concepts of *sustainability*, *integrated reporting* and the *balanced scorecard* are considered (section 1), followed by the research method used (section 2), is highlighted. Section 3 presents the empirical results and Section 4 gives the key performance indicators. The final section concludes with recommendations, limitations and areas for further research.

1. Theoretical framework

1.1. The concept of sustainability. A contemporary understanding of the (corporate) sustainability concept is that it creates long-term shareholder value by identifying and managing economic, environmental and social opportunities and risks. In the contemporary business environment, the two terms sustainability and CSR are often used interchangeably (Rohm & Montgomery, 2011; Kiewa, 2011). A sustainability report provides a format for managers to improve the quality of the organization's integrated economic, social and environmental objectives for the relevant communities, stakeholders and practitioners (Caraiani et al., 2012). The ability to quantify the contribution of sustainability to the business and, in turn, the contribution of the business to the broader environment is therefore an important part of sustainable reporting (Holmes, 2013).

According to Mervyn King, former chairman of the GRI and current chairman of the International Integrated Reporting Council (IIRC), governance, strategy and sustainability are factors that are inseparable (Gibbons et al., 2010). These standards cannot be dealt with in isolation as they need to improve transparency and materiality. To achieve sustainable business successes, an effective performance management system needs to be implemented and controlled (Babber, 2012/2013). According to Peter Bakker, president of the World Business Council for Sustainable Development, managers and accountants can make a difference in the business environment by ensuring that sustainability becomes more measurable and tangible through integrated reporting (Babber, 2012/2013).

1.2. The concept of integrated reporting. In today's integrated business environment, it is difficult to exclusively use financial information because such information tends to focus on shorter-term goals and often ignores the reasons why certain variations in corporate performances occur. Sustainability indicators are usually qualitative in nature and managers often face a challenge to assign financial values to these indicators (Caraiani et al., 2012). There is also an increasing need for a global framework that managers can use as a benchmark for their sustainability performance measurements. This is, according to Holmes (2012), a key reason why the IIRC developed an International Reporting (IR) framework. The concept of integrated reporting therefore includes both contemporary financial statements and sustainability reports with the objective to inform all stakeholders on how organizational strategies are linked in order to create value over the short-, medium- and long-term (IIRC, 2013). The IIRC also recently signed an agreement with the GRI to strengthen their cooperation in sustainability reporting (Furber, 2013).

The GRI identified contemporary global challenges and released their first Sustainability Reporting Framework in 2000, with the latest G4 release in May 2013 (GRI, 2013a). The framework focuses on three important areas namely the 1) economics, 2) environment, and 3) society. It furthermore elaborates on labor practices, human rights and product responsibility as part of the social dimension of sustainability. The main goal of the GRI framework is to provide a trusted and credible framework, used by any organization, to clearly and openly report on relevant sustainability issues (GRI, 2013b).

The GRI also provides certain sector supplements that focus on sector-specific performance measurements to address industry-specific sustainability issues. The oil and gas sector supplement issued by the GRI aims to assist companies within this sector to report on their sustainability performance. Relevant performance indicators form part of the standard disclosure of the sector supplements and can either be quantitative or qualitative in nature. The sector supplement includes indicators that were identified as main reporting issues for the oil and

gas sector. These indicators can be identified by their unique OG indicator code. Furthermore, the performance indicators are divided into *core* and *additional* indicators. The core indicators are considered to be universal and, if material, can be used by all organizations, while the additional indicators address emerging topics that may be material for some organizations under certain circumstances.

Although sustainability reporting is still voluntary, integrated reporting is becoming more important for various stakeholders and the business environment in which organizations operate, and in the case of South Africa, compulsory for JSE listing requirements. A study by Van Zyl (2013) found that although many South African companies claim to present integrated reports, the understanding of what it should represent and the level of integration is still very low. Therefore, the GRI, together with the BSC, can be used as a starting point to integrate environmental and social aspects into the core management system to effectively support strategic decision-making and control (Groot & Selto, 2013; Figge et al., 2002).

The sustainability reporting guidelines of the GRI can therefore be used as a framework to assist managers in developing their own integrated report.

1.3. The concept of the balanced scorecard. The BSC, developed by Kaplan and Norton, celebrated its 20th anniversary in 2012 and has been proven to be one of the most influential tools in management strategy (Rabanni et al., 2014; Chen et al., 2011; Rohm & Montgomery, 2011). The BSC is based on the assumption that companies can gain a competitive advantage when they focus on both quantifiable *hard* factors as well as soft factors such as employee knowledge and customer relations (Khomba et al., 2011; Schaltegger & Lüdeke-Freud, 2011). The BSC focuses on the four key areas of 1) financial, 2) customer, 3) internal business process, and 4) learning and growth perspectives. Nevertheless, despite all of the benefits of the BSC, Hansen and Schaltegger (2012) recognized that the incorporation of certain sustainability issues has been neglected, and therefore needs to be adapted to the changing business environment.

The concept of a *sustainable balanced scorecard* can be described as a traditional BSC that integrates economic, environmental and social issues that aim to transform the so-called *soft* factors into long-term strategic goals and contribute to sustainability in an integrated way (Chai, 2009; Figge et al., 2002). Butler et al. (2011) suggest that a BSC framework could assist managers in addressing such issues as it aims to align sustainability objectives with corporate strategies. Although sustainability encompasses economic, environmental and social issues, the incorporation of sustainability into the BSC would typically focus on environmental and social measures, as key economic factors are already addressed in the financial perspective of the BSC.

Sustainability can be incorporated within the BSC by means of three possibilities (Figge et al., 2002); firstly, by integrating environmental and social measures into the existing four BSC perspectives. The identified environmental and social indicators, targets and initiatives have to be integrated into the conventional four BSC perspectives by way of subsumption (Schaltegger & Lüdeke-Freund, 2011). The integration of sustainability into the BSC will also provide a framework to evaluate and ensure that sustainability is part of the day-to-day processes of the company. It also emphasizes the cause-and-effect relations between sustainability and corporate strategies (Butler et al., 2011). Secondly, by including an additional non-market perspective into the BSC. Environmental and social aspects are not typically fully integrated into the market price of oil and gas companies – these aspects are typically classified as market externalities. An additional non-market perspective may be needed, as all other BSC perspectives are market based (Figge et al., 2002). Sustainability performance indicators that have an influence on the company's performance, whether directly through the financial perspective or indirectly through the other three BSC perspectives, are included in this additional perspective (Schaltegger & Lüdeke-Freund, 2011). Thirdly, by formulating a unique BSC that addresses environmental and social issues. Since this draws the attention away from the conventional BSC and further organizes, coordinates and differentiates environmental and social aspects, this approach would only be used in conjunction with one of the two approaches discussed above. It emphasizes a company's commitment to corporate sustainability and therefore cannot be used independently, but rather as an extension to the existing BSC (Figge et al., 2002; Butler et al., 2011).

According to Figge et al. (2002), it is important to formulate an SBSC for a specific business unit and then to identify environmental and social aspects that are strategically relevant to that business unit. The GRI framework can assist managers in this process by providing a framework with a variety of *performance indicators* and sector-specific indicators such as *strategic core issues* and *environmental exposure* elements (Figure 1). The *social exposure* of a business unit is quite different to determine as it is usually associated with the company's CSR and is not unit specific. It is therefore appropriate to classify the social performance indicators according to the stakeholders involved, whether they are involved with *direct* material exchange flows or whether they are *indirect* stakeholders from the community (Figge et al., 2002).

Table 1. Strategic relevance of environmental and social aspects

	Environmental exposure							Social exposure							
								Direct stakeholders				Direct stakeholders			
	Emissions	Waste	Material input	Noise and vibration	Waste heat	Radiation	Land use	Internal	Along the value chain	In the local community	Societal	Internal	Along the value chain	In the local community	Societal
Strategic core issues (lagging indicators)															
Performance drivers (lagging indicators)															

Source: Figge et al., 2002.

The SBSC, when fully implemented, should provide a framework for managers who express long-term organizational strategies (financial and non-financial) that are linked to sustainability.

2. Research method

An observational, *ex post facto* and descriptive research methodology has been used to achieve the stated objectives. Furthermore, content analysis, following the meaning-oriented approach, of the companies' integrated reports, was conducted analy-zing both quantitative and qualitative data, as the integrated reports consist of both *financial* and *non-financial* information. The research was performed based on all the JSE-listed companies in the oil and gas sector. Since all JSE-listed companies have been required to issue integrated reports since 2010, the integrated reports for both the 2011 and 2012 reporting years were obtained from the respective companies' websites in order to compare the reports and to identify improvements and changes in their sustainability management. The performance measurements identified in the integrated reports were compared against the *Oil and Gas Sector Supplement* indicators as per the G3.1 version requirements (note that the GRI has subsequently released the G4 version).

The research population included all three listed companies within the oil and gas sector of the JSE, namely 1) Oando Plc, which is an integrated energy solutions group in sub-Saharan Africa that focuses on related upstream, midstream and downstream activities, 2) Sacoil Holdings, which is a leading independent African company that focuses primarily on related upstream activities, and 3) Sasol Ltd, which is an international integrated global energy and chemical company, listed on both the JSE and the New York Stock Exchange (NYSE). Even though all three companies are listed on the JSE, which means they are required to submit integrated reports in accordance with the JSE listing requirements, Sasol is currently also submitting reports to the GRI. Furthermore, according to the *GRI Application Level*, Sasol is rated with an 'A+' rating based on the extent to which Sasol complies with the GRI reporting framework, and it indicates that Sasol utilized external assurance for their GRI report.

3. Results

The main objective of this study is to develop a sustainable balanced scorecard (SBSC) that satisfies the needs of the oil and gas sector. Firstly, it was established which sector supplement indicators the sampled companies report on, followed by the identification of the current key performance indicators (KPIs) as published in the integrated reports. The results are highlighted in Table 2. Secondly, these KPIs were compared to the GRI oil and gas (OG) sector supplement indicators.

Table 2. Oil and gas sector supplement indicators

	Sasol		Sacoil		Oando	
	2011	2012	2011	2012	2011	2012
ECONOMIC						
OG1 (Volume and type of estimated proved reserves and production)	✓	✓	-	-	-	-
ENVIRONMENT						
OG2 (Total amount invested in renewable energy)	✓	✓	-	-	-	-
OG3 (Total amount of renewable energy generated by source)	✓	✓	-	-	-	-
OG4 (Number and percentage of significant operating sites in which biodiversity risk has been assessed and monitored)	✓	✓	-	-	-	-

Table 2 (cont.). Oil and gas sector supplement indicators

	Sasol		Sacoil		Oando	
	2011	2012	2011	2012	2011	2012
OG5 (Volume of formation or produced water)	✓	✓	-	-	-	-
OG6 (Volume of flared and vented hydrocarbon)	✓	✓	-	-	-	-
OG7 (Amount of drilling waste and strategies for treatment and disposal)	✓	✓	-	-	-	-
OG8 (Benzene, lead and sulphur content in fuels)	✓	✓	-	-	-	-
SOCIAL						
OG9 (Operations where indigenous communities are present or affected by activities and where specific engagement strategies are in place)	✓	✓	-	-	✓	✓
OG10 (Number and description of significant disputes with local communities and indigenous people)	✓	✓	-	-	-	-
OG11 (Number of sites that have been decommissioned and sites that are in the process of being decommissioned)	✓	✓	✓	✓	-	-
OG12 (Operations where involuntary resettlement took place, the number of households resettled in each and how their livelihoods were affected in the process)	✓	✓	-	-	-	-
OG13 (Number of process safety events by business activity)	✓	✓	-	-	✓	✓
OG14 (Volume of biofuels produced and purchase meeting sustainability criteria)	✓	✓	-	-	-	-

Sasol, as the largest and leading company in this sector, was the only company that reported on all 14 sector-specific indicators (OG1 to OG 14). Although the company does not address all the above issues directly in their integrated report, they do refer to the additional sustainable development report that is based on the GRI framework. In turn, *Sacoil* only reported on one sector-specific indicator (OG11) that refers to sites that have been (or are being) decommissioned, including the decommissioning costs caused by exploration, evaluation, development or ongoing production evaluated by experts in the field. *Oando* focuses on social issues such as operations where indigenous communities are present, together with their sustainable community development program (OG9). Oando also reported on safety – considered one of the most important performance indicators in the *oil and gas industry*. It is incorporated into the *oil and gas sector supplement indicator* under social performance measurements, OG13. It refers to the prevention of process safety events such as spills, fires and gas releases and includes reporting on the maintenance program of the company.

4. Key performance indicators

The KPIs, as illustrated in Table 2 above, were identified for each company as disclosed in their integrated reports. All three companies include sustainability measurements in their integrated report, whether they provide in-depth analyses regarding their corporate social responsibility or quantify the performance measurements based on the GRI framework.

Based on the objectives of this study, only sustainability indicators were identified, as financial indicators are being addressed in the companies' annual financial report based on the International Financial Reporting Standards (IFRS). The *economic performance* indicators refer to the compliance to the Broad-Based Black Economic Empowerment Act (BBBEE), as well as to macroeconomic risk, which includes crude oil prices and foreign exchange rate risks. The *environmental* perspective consists of five important performance indicators, namely volatile organic compounds (VOCs), energy efficiency, logistic incidents, greenhouse gas incentives and decommissioning (including rehabilitation). The *social performance* is based on the empowerment of the company's employees, number of sponsorships and donations, and community development programs that form part of their corporate social responsibility. Health and safety were also identified as one of the major key performance indicators in the social category.

Table 3. Key performance indicators for the oil and gas sector

	Sasol	Sacoil	Oando
Economic			
BEE	✓	✓	✓
Macroeconomical risks	✓	✓	✓
Environment			
VOC	✓		
Energy efficiency	✓		
Logistic incidents	✓		
GHG	✓		
Decommissioning		✓	✓
Health and safety	✓	✓	✓
Sponsorships		✓	✓
Training		✓	✓
Community development		✓	✓

The above results indicate that oil and gas companies report on all three aspects of sustainability; however, the focus remains on economic and social indicators. Both economic KPIs achieved a 100% reporting score.

In terms of the environmental aspects, Sasol reported on all KPIs except decommissioning. The other two companies, in turn, only reported on decommissioning and the rehabilitation of operation sites. Sacoil also implemented water and air quality programs, but this was not identified as a key performance indicator, as minimal information was provided regarding these programs. In terms of social KPIs, all three companies reported on safety activities and their compliance to health and safety legislation, whereas only Sacoil and Oando reported on the other aspects. Sasol also reported on investments and training, but it was not identified as one of the non-financial key performance measurements (Sasol, 2012). Sacoil also focused on the implementation of a social and ethics committee, which is responsible for the monitoring of activities regarding legislation and 'best practice'.

Developing a SBSC

As stated earlier, the objective of the study was to develop a sustainability-focused BSC that satisfies the needs of the oil and gas sector. The biggest challenge for these companies is to continually find and provide products that are both environmentally and socially responsible, while simultaneously contributing to global economic and social development (IPIECA, 2013). The traditional BSC provides a broad scope of financial and non-financial information, but nevertheless it has to evolve further in order to provide an integrated management system that addresses the unavoidable contribution to sustainable development (Hansen & Schaltegger, 2012; Schaltegger & Lüdeke-Freund, 2011). Firstly, it is important to identify important KPIs that need to be included in the SBSC. The above results, as indicated in Table 2, refer to important performance indicators for each company based on their published integrated and sustainability reports. These, together with important sustainability topics as identified by stakeholders through a survey at the GRI conference (GRI, 2013b), were used to develop the environmental and social exposure of *oil and gas* companies. In Table 3, a summary of the sustainable environmental performance measurements is high-lighted.

Table 4. Environmental exposure of oil and gas companies

Environmental exposure	
Performance indicator	Performance measurements
Energy efficiency	Total amount invested in and generated by renewable energy Energy consumption and reduction Information regarding R&D of renewable energy technology
Logistic incidents	Number of products transported by means of pipelines, railway and road
GHG emissions	Total amount of GHG emissions Strategies to reduce GHGs caused by production, refining and product end use
Decommissioning	Decommissioning / Rehabilitation cost Number of sites decommissioned and in the process of being decommissioned
Biodiversity impact management	Number of operation sites that have impact on biodiversity Strategies to prevent/decrease BES
Water management	Water consumption Number of waste water treatment plants
Pollution	Amount of drilling waste Number of leakages and oil spills Strategies to prevent pollution and oil/gas spills
Fuel quality	Benzene, lead and sulphur content in fuels Volume of biofuels produced and purchased that meet sustainability criteria

Table 5 summarizes the social exposure performance measures developed for oil and gas companies.

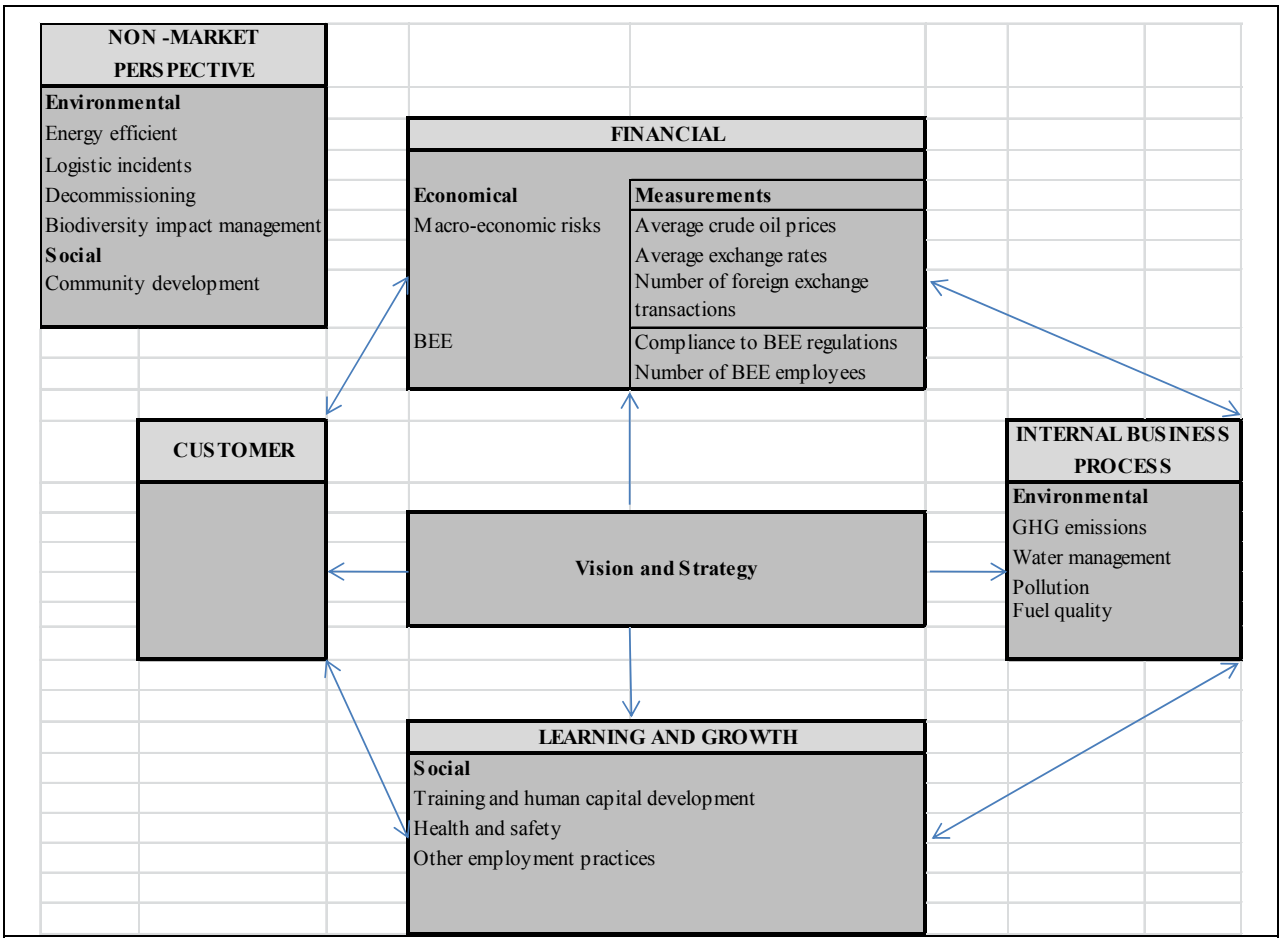
Table 5. Social exposure of oil and gas companies

Social exposure	
Performance indicator	Performance measurements
Health and safety	Number of accidents Activities to inform employees regarding health and safety Number of process safety events Security practices in sensitive and/or conflict-affected areas
Training and human capital development	Number of promotions based on work performance Number of scholarships and academic contributions
Other employment practices	Compliance to human rights legislation Number of employees based on race and gender
Community development	Assessment and mitigation of impacts on local communities Action to compensate or reduce local community resettlement Operations where indigenous communities are present and where specific engagement strategies are in place Activities to improve the lives of the companies' host communities

As mentioned previously, Figge et al. (2002) identified three possibilities to incorporate sustainability within the traditional BSC. Managers may be keen to adapt the BSC based on the first method of subsumption as the oil and gas sector focuses on sustainable practices such as environmental, health and safety (EHS) issues and it is easy and not time consuming (Butler et al., 2011). However, most sustainability indicators are treated as externalities and therefore are not reflected in the company's market price and transaction. It was found that the market only reacted to three environmental performance indicators, namely 1) voluntary emissions reduction, 2) ISO 14001 certification, and 3) corporate donations to environmental causes (Came,

2011). It is therefore useful to integrate both the first method of subsumption and the second method of an additional non-market perspective to formulate a single SBSC framework, dependent on the characteristic of the environmental and social issues. A number of environmental and social indictors that are included in the market system can be integrated into the existing four perspectives, while other indicators such as local community disputes are not included in the market and therefore need to be included in the additional non-market perspective (Schaltegger & Lüdeke-Freund, 2011; Figge et al., 2002).

In Figure 1, the performance indicators and measurements identified in Tables 3 and 4 are grouped into the existing perspectives of the BSC, based on the assumption that these indicators are included in the market price; and those indicators that are not included in the market price of the companies are separated into the fifth, non-market perspective.



Source: Adapted from Schaltegger & Lüdeke-Freund, 2011.

Fig. 1. Sustainable balanced scorecard for the oil and gas sector

The SBSC developed in Figure 1 includes economic, environmental and social aspects that were identified in the separate integrated reports of the sampled oil and gas companies. It was objectively included into the four BSC perspectives. The economic performance measurements are also included in the financial perspective as they are market related and have a direct effect on the financial measurements. GHG emissions, water management, pollution and fuel quality (product quality) are identified as measurements that have an impact on the market and therefore certain related transactions. These measurements are, therefore, included in the internal business process. The learning and growth perspective includes social measurements such as training as well as health and safety procedures. All other environmental measurements, as identified in Table 2, and community developments are included in the non-market perspective, as these are not included in the market system.

Concluding discussion and comments

Globally, sustainability has become increasingly important for the oil and gas sector in recent times. The impact of climate change and the number of oil spills increase the sustainability risk and have an effect on how shareholders and investors value these companies. Furthermore, the oil and gas sector is one of the key players in the South African economy. It is therefore important to include sustainability

in the company's overall strategy and business decisions. The main research objective was to develop a sustainable balanced scorecard that addresses the needs of the oil and gas companies. It was found that the selected oil and gas companies include sustainability issues in their integrated reports with a focus on social aspects. These included training, health and safety, compliance to human rights, and community development in the local areas in which they operate. Furthermore, the GRI framework, together with the oil and gas sector supplement, can be used to identify performance indicators relevant to the specific company. These indicators can then be incorporated with the conventional BSC measurements to ensure balance regarding financial and economic, environmental and social issues.

Limitations of the study

The results of this study are limited by the focus on JSE-listed companies within the *oil and gas sector* and do not include other major *oil and gas* companies in South Africa. Furthermore, GRI *sector-specific indicators* were used to determine whether the companies integrated GRI indicators into their sustainability reporting. Therefore, the focus on the *oil and gas sector* limits the application of the SBSC to companies in other industries. The key performance indicators were also objectively identified based on important factors discussed in the integrated reports.

In addition to the above, this study focused on including sustainability, which consists of economic, environmental and social issues, into the BSC. No attention is paid to the conventional BSC perspectives. This, being outside the scope of the research, limits the application of the results.

Areas for future research

Considering the above limitations, and the increasing importance of sustainability reporting, further research can be conducted with regard to the global *oil and gas sector*. The research can also be expanded to include indicators from the general GRI framework and performance indicators in the four BSC perspectives.

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