

**Exploring the role of visuals in sensemaking and sensegiving:
A study of the Sustainable Development Goals in corporate
South Africa**

by
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Declaration

By submitting this thesis electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

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Abstract

The expectation of business as a key stakeholder in achieving the Sustainable Development Goals (SDGs) is made explicit in the United Nations *2030 Agenda for Sustainable Development* that represents a significant global commitment to the sustainability agenda. However, challenges related to business awareness, engagement, and implementation of strategy in relation to the SDGs are impeding change efforts. Concurrently, while the utility of visuals is broadly acknowledged in the organisational and sensemaking/sensegiving literature, their role in processes of sensemaking and sensegiving is underexplored in comparison to written and verbal communication. Therefore, this study aims to explore the potential role of visuals in the processes of sensemaking and sensegiving through a study of the engagement with and understanding of the SDGs by sustainability practitioners in companies. Business engagement with the SDGs provides a rich context for this study, while the exploration of visuals connects the SDG iconography and everyday ubiquity of visual communication to the organisational and sensemaking/sensegiving literature. I employ a grounded theory methodology and draw on a mixed-methods approach to analyse surveys, semi-structured interviews, and documentary data from companies listed on the Johannesburg Stock Exchange in South Africa. Considering the current engagement of companies in South Africa with the SDGs, I find that although there is a high level of awareness, many companies are yet to translate awareness into actionable strategy. In addition, while the SDGs may catalyse and frame business activities in support of the sustainability agenda, there are operational and interpretive challenges related to engaging with the SDGs. Exploring how companies use visuals when engaging with and communicating on the SDGs, I find that although most companies use some form of visuals, particularly infographics, the use of moving images and three-dimensional media remains limited. Reviewing how visuals may meaningfully contribute towards sensemaking and sensegiving, I identify and elaborate on 12 activities that are supported by visuals and that form part of the four key sensemaking/sensegiving processes of scanning, interpreting, explaining, and influencing. My research findings contribute to an improved, and much needed, understanding of the role of visuals in the organisational and sensemaking/sensegiving literature, and also provide practical insights for practitioners on the use of visuals in engaging with and communicating on the SDGs. As business grapples with reimagining its contribution to the sustainability agenda, I argue for a renewed - and reimagined - focus on the role of visuals in sensemaking and sensegiving.

Opsomming

Die verwagting gestel aan besighede as 'n sleutelbelanghebbende by die bereiking van die Volhoubare Ontwikkelingsdoelwitte word duidelik gemaak in die Verenigde Nasies se 2030 *Agenda vir Volhoubare Ontwikkeling*, wat 'n beduidende wêreldwye verbintenis tot die volhoubaarheidsagenda uitmaak. Die uitdagings wat sakebewustheid en -betrokkenheid betref, en die implementering van strategie in verband met hierdie Doelwitte, belemmer egter die pogings tot verandering. Ofskoon die gebruikswaarde van visuele kommunikasie algemeen in die organisatoriese en sinmakings-/singewingsliteratuur erken word, is die rol daarvan in die sinmakings- en singewingsproses nie so duidelik as dié van skriftelike en verbale kommunikasie nie. Hierdie studie is gevolglik gemik daarop om die potensiële rol van visuele kommunikasie in die proses van sinmaking en singewing te ondersoek aan die hand van 'n studie oor volhoubaarheidspraktisyns in maatskappye se betrokkenheid by en hulle begrip van hierdie Doelwitte. Sakebetrokkenheid by die Doelwitte bied 'n ryk konteks vir hierdie studie, terwyl daar deur die verkenning van visuele kommunikasie by die Doelwit-ikonografie en daaglikse alomteenwoordigheid van visuele kommunikasie in die organisatoriese en sinmakings-/singewingsliteratuur aangesluit word. Ek gebruik 'n gegronde teoriemetodologie en volg 'n gemengdemetode-benadering om opnames, semi-gestruktureerde onderhoude en dokumentêre data van maatskappye genoteer op die Johannesburgse Sekuriteitebeurs in Suid-Afrika te ontleed. Gegewe die huidige betrokkenheid van maatskappye in Suid-Afrika by hierdie Doelwitte, bevind ek dat, alhoewel daar 'n hoë vlak van bewustheid is, heelwat maatskappye nog nie hierdie bewustheid in afdwingbare strategieë omgeskakel het nie. Terwyl hierdie Doelwitte as katalisator en raamwerk vir sake-aktiwiteite ter ondersteuning van die volhoubaarheidsagenda dien, is daar ook operasionele en interpretatiewe uitdagings wat betref betrokkenheid by die Doelwitte. Om te ontdek hoe maatskappye visuele kommunikasie gebruik wanneer hulle by die Doelwitte betrokke raak en daarvoor kommunikeer, bevind ek dat ofskoon die meeste maatskappye 'n vorm van visuele kommunikasie gebruik, veral infografika, die gebruik van bewegende beelde en driedimensionele media beperk bly. In 'n oorsig van hoe visuele kommunikasie betekenisvol tot sinmaking en singewing kan bydra, identifiseer en verduidelik ek 12 aktiwiteite wat deur visuele kommunikasie ondersteun word en deel uitmaak van die vier sleutelsinmakings-/singewingprosesse van skandering, interpretasie, verduideliking, en beïnvloeding. My navorsingsbevindings dra by tot 'n verbeterde en noodsaaklike begrip van die rol van visuele kommunikasie in die organisatoriese en sinmakings-/singewingsliteratuur, en bied praktiese insigte vir praktisyns oor die gebruik van visuele kommunikasie vir betrokkenheid by en kommunikasie oor hierdie Doelwitte.

Siende dat besighede dit moeilik vind om hul bydrae tot die volhoubaarheidsagenda te herbedink, redeneer ek vir 'n hernieude – en herbedinkte – fokus op die rol van visuele kommunikasie in sinmaking en singewing.

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Dedication

For Eve, Marguerite, Tanya, and Kelley
whose courage inspires me

Be courageous. It's one of the only places left uncrowded

Anita Roddick (1942-2007)

Businesswoman, human rights activist, and environmental campaigner

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List of Acronyms and Abbreviations

\$	United States dollar
2/3D	two/three-dimensional
AU	African Union
B-BBEE	Broad-Based Black Economic Empowerment
BSDC	Business and Sustainable Development Commission
CAQDAS	computer assisted qualitative data analysis software
CEO	chief executive officer
CSR	corporate social responsibility
ESG	environmental, social, and governance
FTSE	Financial Times Stock Exchange
GHG(s)	greenhouse gas(es)
GRI	Global Reporting Initiative
ICSU	International Council for Science
ITP	Interactive Telecommunications Program
JSE	Johannesburg Stock Exchange
KING IV	King IV Report on Corporate Governance in South Africa
KPI(s)	key performance indicator(s)
MDG(s)	Millennium Development Goal(s)
NDP	National Development Plan
NGO(s)	non-governmental organisation(s)
PwC	PricewaterhouseCoopers
RI	Responsible Investment
SDG(s)	Sustainable Development Goal(s)
SVCF	Silicon Valley Community Foundation
TCFD	Task Force on Climate-related Financial Disclosure
UN	United Nations
UNGC	United Nations Global Compact
VR	virtual reality
WBCSD	World Business Council for Sustainable Development
WCED	World Commission on Environment and Development
WEF	World Economic Forum
WSSD	World Summit on Sustainable Development

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Definition of Terms

Business/company:

I use the terms *business* and *company* interchangeably in this study to refer to an organisation in the private sector, which is not under government ownership, and that exchanges goods and/or services with the aim of making a financial profit.

Sustainability practitioner:

A sustainability practitioner is actively involved with the field of sustainability as part of their working duties and promotes sustainability within their organisation. In this study, I use the term to refer to professionals who are required to engage with and understand their company's sustainability activities, policy, and strategy, and may include sustainability managers, integrated reporting managers, investor relations managers, and in some instances, the company secretary.

Visual(s):

Visuals refer to artefacts that are interpreted through sight. Examples of visuals include two/three-dimensional (2/3D) media such as images, graphs, maps, structures, photographs, and infographics. In this report, text is excluded from the definition of *visuals* although it is also a non-verbal form of communication.

Chapter 1 - Introduction

1.1 Introduction

Globally, companies are increasingly considering how they will be both affected by, and have the potential to affect, the advancement of the United Nations (UN) Sustainable Development Goals (SDGs). In this study, I explore the role of visuals in the sensemaking and sensegiving processes of sustainability practitioners engaging with the SDGs in companies in South Africa. Business engagement with the SDGs provides a rich context for the study, while the exploration of visuals connects the SDG iconography and everyday ubiquity of visual communication to the organisational and sensemaking/sensegiving literature. Therefore, my research considers how sustainability practitioners are making sense of the SDGs and how visuals may meaningfully contribute towards practices of scanning, interpreting, explaining, and influencing.

This introductory chapter provides the context for the study. I discuss the trends that provide the background for my research and introduce the problem statement, associated research objectives, and study rationale. I then provide an overview of the research limitations and research strategy. I conclude with a summary of the chapter outline for the thesis.

1.2 Background

In this section, I first discuss the consequences and challenges of human development to highlight the importance of the SDGs and its implications for business. This introduces the sustainability framing for the research. I further consider the importance for business to respond to the challenge of understanding and communicating on the SDGs. I then provide a brief overview of sensemaking/sensegiving and the visual context for the research introducing the theoretical concepts and gaps in the literature that I explore in this study.

1.2.1 Unsustainable trends in the Anthropocene

We live in an age of progress. Innovation, technological development, and the expansion of economic pursuits have resulted in increased, albeit unequal, human prosperity (Wells 2013; Steffen, Broadgate, Deutsch, Gaffney & Ludwig 2015; World Economic Forum [WEF] 2018). According to the WEF (2018:5), “globally, people are enjoying the highest standards of living in human history”.

Humanity's progress is signalled by a growing global economy (WEF 2018), the increasing accumulation of wealth (Steffen, Persson, Deutsch, Zalasiewicz, Williams, Richardson, Crumley, Crutzen, Folke et al. 2011), and on-going technological advancement (Rockström, Bai & DeVries 2018). Arguably, we are now living in a human age.

However, scientists have coined the term 'the Anthropocene', a human age, not as a marker of human prosperity, but rather to capture the dominant influence of human activity on the natural environment (Crutzen 2002). In this age of the Anthropocene, an unsustainable development pathway, coupled with a growing human population (Steffen et al. 2011), has left our social and environmental networks on the "brink of a systems breakdown" (WEF 2018:5).

Examples of such systemic breakdown include large-scale biodiversity loss and ecosystem degradation (Steffen et al. 2011). The interdependence of social and environmental systems means that we both affect and are affected by such changes (Folke 2006). For example, anthropogenic climate change has resulted in increasing numbers of 'climate refugees' (Biermann & Boas 2010) and ocean plastic pollution poses a risk to human health through the marine food chain (Seltenrich 2015). These challenges are compounded by persistent high levels of poverty and social inequality (Swilling & Annecke 2012), leading to a breakdown in social trust and increased levels of violence and hostility (Marcus, Kurucz & Colbert 2010; Carter & Reardon 2014; Jarman 2016).

1.2.2 The SDGs: A global framework for sustainability

In response to these global challenges, the UN released *The 2030 Agenda for Sustainable Development* as a plan "to shift the world onto a sustainable and resilient path" (UN General Assembly 2015:1). Adopted in September 2015, the 17 SDGs, with a cumulative 169 targets, provide a framework for improved global economic, social, and environmental outcomes and aims to adjust the trajectory of human development (UN General Assembly 2015).

The SDGs, also known as the Global Goals, are a continuation of the 15-year developmental agenda, launched in 2000 as the Millennium Development Goals (MDGs), that primarily aimed to improve conditions of extreme poverty (UN 2015a). The *2030 Agenda for Sustainable Development* also recognises that addressing poverty and social inequality is “an indispensable requirement for sustainable development” (UN General Assembly 2015:1). Meeting people’s basic material and social needs is therefore one of its guiding principles.

However, the SDGs also include environmental and economic objectives and explicitly aim to foster global partnerships in support of the sustainability agenda (UN General Assembly 2015). The SDGs are unique in that the goals are considered equally applicable for all UN member states, and that, in contrast to the MDGs, their development was a ‘hyper-participatory’ process including contributions from governments, non-governmental organisations (NGOs), and the private sector (Scheyvens, Banks & Hughes 2016).

1.2.3 The SDGs and the role of business

Achieving the SDGs will require collective action (UN General Assembly 2015). The SDGs explicitly “call upon all businesses to apply their creativity and innovation to solving sustainable development challenges” (UN General Assembly 2015:29). Indeed, the perspective that the successful implementation of the SDGs will require the support of the private sector has become increasingly prevalent (Scheyvens, Banks & Hughes 2016; Agarwal, Gneiting & Mhlanga 2017; Business and Sustainable Development Commission [BSDC] 2017; Hoek 2018).

There is also growing pressure for business to respond to the sustainability agenda. It is anticipated that governments will implement more stringent legislation in support of the SDGs (PricewaterhouseCoopers [PwC] 2016a), while citizens (PwC 2016a), and employees (Casey & Sieber 2016), increasingly expect business to engage with the SDGs and its associated sustainability themes. There has also been an increase in the number of climate change litigations (United Nations Environment Programme 2017), where action on climate change is expressly captured as SDG 13.

However, businesses may find it challenging to integrate sustainability goals into corporate strategy (United Nations Global Compact [UNGC] 2017). While the SDGs provide a 'common framework' for action (Global Reporting Initiative [GRI], UNGC & World Business Council for Sustainable Development [WBCSD] 2015), they are also highly integrated and might require difficult trade-offs (International Council for Science [ICSU] 2017; Machingura & Lally 2017).

For example, increased industrial activity may improve the availability of jobs, but industrial emissions may also negatively affect community health (ICSU 2017). Efforts to reduce emissions may also have adverse consequences for business. For example, the implementation of renewable energy may result in job losses in fossil-fuel based industries (ICSU 2017). Therefore, achieving the SDGs will require an understanding of the interactions between the goals and targets to identify policies or technology alternatives that may offer a solution to these, and other, intractable scenarios (ICSU 2017).

Yet, incentives for business to engage with the SDGs remain significant. According to the BSDC, the 'SDG prize' represents business opportunities worth \$12 trillion that may be realised through the implementation of strategies in support of the SDGs (AlphaBeta 2017). In addition, in order for companies to ensure their ability to operate in the long-term, it is vital that they contribute to the environmental and social resilience of the communities in which they are embedded (Marcus, Kurucz & Colbert 2010; de Jongh & Möllmann 2014; Dobson & Bertels 2017).

Overall, the SDGs mark a shift in the expectation of the private sector as an economic contributor to development, to that of a leader in developmental strategy (Scheyvens, Banks & Hughes 2016). Whether such an expectation may - or even should - be fully realised remains unclear, as within a global neo-liberal framework, the core objective of business remains the generation of profits (Scheyvens, Banks & Hughes 2016).

Indeed, some scholars remain cautious of increased business partnership with the UN (Zammit 2003; Koehler 2015). For example, Koehler (2015) contends that the close involvement of the private sector in the development of the SDGs may have resulted in a power imbalance that suppressed the voices of other stakeholders, such as NGOs. Or, as suggested by Agarwal, Gneiting, and Mhlanga (2017), business may have lobbied governments to reduce social and environmental regulation.

1.2.4 The SDGs and business in South Africa

Companies in South Africa also need to reconcile traditional business objectives with positive social and environmental outcomes (de Jongh & Möllmann 2014). Indeed, the notion of 'ecologically sustainable development' is enshrined in the *Constitution of the Republic of South Africa* (1996).

During the adoption of the SDGs, former president Jacob Zuma endorsed the goals in a speech to the UN (Zuma 2015). In 2015, President Zuma also asserted that the SDGs were aligned to both the South African National Development Plan (NDP), as well as Agenda 2063, the African Union's (AU) framework for the social and economic development of the African continent (AU Commission 2015). Following the endorsement of the SDGs by former president Zuma (2015), the national government asserted that the SDGs would only be achieved through partnerships between the state, civil society, and the private sector (Solomons 2017).

However, while engaging with the SDGs appears all the more urgent in the Global South, where governments are often incapacitated to effect meaningful change (Warhurst 2005) and sustainability challenges are exacerbated by the prevalence of social ills such as poverty and unemployment (Murthy 2012; de Jongh & Möllmann 2014; Quint 2014), there are indications that businesses in South Africa are struggling to meet the expectations of the sustainability agenda (de Jongh & Möllmann 2014; Malan 2016; PwC 2016b). In a 2015 PwC survey, the majority of businesses in South Africa had not identified the SDGs of most relevance to their operations, and few had translated an awareness of the SDGs into measurable business strategy (PwC 2016b). According to PwC (2016b), business is increasingly asking 'where to start' in making sense of the SDGs.

To support business engagement with the SDGs, it therefore seems worthwhile to explore how businesses in South Africa are *making sense* of the corporate sustainability agenda in relation to the SDGs. In particular, it may be useful to better understand the underlying processes involved in how sustainability practitioners create an understanding of, and influence, interpretations of the Global Goals.

1.2.5 Making sense of the SDGs: the role of sensemaking and sensegiving

In the academic literature, 'understanding' and 'influencing' are explored as part of the processes of sensemaking and sensegiving (Gioia & Chittipeddi 1991). Sensemaking broadly refers to the "process of constructing and interpreting the world" (Gephart 1993:1485), as actors aim to create an understanding of confusing events that may have multiple or contradictory interpretations (Weick, Sutcliffe & Obstfeld 2005; Maitlis & Christianson 2014; Sandberg & Tsoukas 2015). Sensegiving is the process of sharing meaning and influencing the understanding of others, and is closely related to sensemaking (Gioia & Chittipeddi 1991).

Considering the 'complexity' and 'uncertainty' associated with the grand challenges of sustainability (Ferraro, Etzion & Gehman 2015), organisations are likely to use a sensemaking approach to develop a shared meaning and understanding of such multifaceted challenges (Thomas, Clark & Gioia 1993; Hahn, Preuss, Pinkse & Figge 2014; Maitlis & Christianson 2014), and, in particular, of the interrelated and ambitious targets of the SDGs (UN General Assembly 2015). Also, considering that "in tackling grand challenges, organizations operate at the intersection of conflicting demands" (Ferraro, Etzion & Gehman 2015:368), difficult trade-offs among stakeholder demands are likely to be required, particularly between the maximisation of profits and the pursuit of other social goals (Sharma & Good 2013). Therefore, to resolve or partly resolve these tensions, organisational actors may need to engage in sensegiving to influence the understanding of internal and external stakeholders when sharing their sustainability strategy.

1.2.6 The visual context for the study

The SDGs must be achieved in an interconnected, fast-paced world (Hoek 2018; Rockström, Bai & DeVries 2018) where "we are instantaneously in contact with everybody, everywhere" (Cilliers 2006:108). Our modes of communication are changing to reflect our "social trends, lifestyles, and more recently technology" (Alshenqeeti 2016:56). We are also now experiencing an 'information explosion' (The Economist 2010), and as accessibility to new technologies improves, even more information will become available and compete for our attention (The Economist 2010; Lankow, Ritchie & Crooks 2012).

The visual language of emojis is one example of how communication has changed towards increased visualisation, in line with new social norms (Alshenqeeti 2016; Petersen & Aakerberg 2016). An emoji, often erroneously used interchangeably with 'emoticon', is a small image used to convey information or emotion in digital communication (Alshenqeeti 2016). While an emoticon is also used to digitally convey emotion, this term refers to an image that is formed from a combination of keyboard characters (Alshenqeeti 2016). Currently, the use of emojis outstrips the use of the English language and is considered "the world's fastest growing language" (Tauch & Kanjo 2016:1561). According to Petersen and Aakerberg (2016), part of the popularity of emojis lies in their ability to transcend barriers, such as age.

In 2015, the Oxford Dictionary word of the year was not a word at all, but rather the 'face of tears' emoji (Oxford Dictionaries 2015) shown in Figure 1.1 below.



Figure 1.1: 'Face of tears' emoji - the Oxford Dictionary word of the year for 2015
Source: Oxford Dictionaries (2015)

Generally, non-written communication has become increasingly common (Alshenqeeti 2016; Jones, Meyer, Jancsary & Höllerer 2017), and is used to simplify large volumes of data, organise interconnected pieces of information, and influence new ways of conducting and reporting on research (The Economist 2010; Currie-Alder 2016; Jones et al. 2017). The SDGs are also associated with a distinct iconography consisting of 17 icons, an SDG logo, and a colour wheel (UN 2016) as shown in Figure 1.2 below.



Figure 1.2: The SDG iconography consisting of 17 icons, logo, and colour wheel
 Source: UN (2015b)

Visuals are often used by the media and NGOs to highlight social and environmental crises (Jones et al. 2017). Recently, a working group at the Tisch School of Arts in New York developed a climate change-themed series of emojis called ‘climojis’ (SustainableITP 2018). Some climojis illustrating vehicle emissions, drought, the consequences of ocean plastic, and urban smog are shown in Figure 1.3.



Figure 1.3: Climojis illustrating vehicle emissions, drought, the consequences of ocean plastic, and urban smog

Source: SustainableITP (2018)

Other examples of the use of visuals in relation to sustainability themes include climatevisuals.org, a database of photographs created by Climate Outreach that documents the effects of climate change (Climate Outreach n.d.), and the *This is Climate Change* virtual reality (VR) series that covers themes such as deforestation in Brazil and climate-induced famine in Somalia (O'Reilly 2018).

Amongst other visual explorations of the SDGs, there have been urban art installations to raise awareness of the SDGs (UN in Mongolia 2017). Figure 1.4 shows artistic representations of SDG 4 (quality education) as a young boy studying, and SDG 7 (renewable energy) as leaves sprouting from an electrical socket. Other visual representations of the SDGs include the publication of *People and the Earth*, which describes the challenges and opportunities offered by the SDGs through 23 infographics (Kok, Sewell, de Blois, Warrink, Lucas & van Oorschot 2017), and the *Atlas of Sustainable Development Goals* that uses data visualisations to explore annual global progress on the SDGs (World Bank 2018).



Figure 1.4: Urban wall art in Mongolia depicting the SDGs for quality education and renewable energy
Source: UN in Mongolia (2017)

1.2.7 Sensemaking/sensegiving and visuals

Sensemaking and sensegiving, introduced in section 1.2.5, are inextricable from themes of language, communication, and narrative (Maitlis & Sonenshein 2010; Cornelissen 2012; Sandberg & Tsoukas 2015). However, the literature has largely focused on the role of written and verbal communication in creating and sharing meaning (Garreau, Mouricou & Grimand 2015; Jones et al. 2017; Höllerer, Jancsary & Grafström 2018), even when broadly referring to the utility of visuals for understanding and influencing meaning (Meyer et al. 2013; Garreau, Mouricou & Grimand 2015; Kassinis & Panayiotou 2017). While some scholars refer to an emergent 'visual turn', where scholars increasingly advocate for an exploration of the role of visuals in meaning-making (Kassinis & Panayiotou 2017), visuals remain underexplored in the organisational and sensemaking/sensegiving literature. Still, as "sensemaking is importantly an issue of language, talk, and communication" (Weick, Sutcliffe & Obstfeld 2005:409), it appears important to explore the role of visual communication alongside the "written and spoken word" (Höllerer, Jancsary & Grafström 2018:618).

This study therefore aims to explore the gap in the sensemaking/sensegiving and organisational literature related to the role of visuals in processes of meaning-making, decision-making, and the generation of knowledge within and from organisations. The organisational sensemaking and sensegiving of the SDGs provides a suitable context for such an exploration. Sensemaking/sensegiving has been researched in relation to both organisational and sustainability themes (van der Heijden, Cramer & Driessen 2012; Hahn et al. 2014; Maitlis & Christianson 2014; Sandberg & Tsoukas 2015), and, as illustrated in section 1.2.6, there are existing visual connections to the SDGs.

1.3 Problem statement

The sustainability challenges of the Anthropocene (Steffen et al. 2015) require an urgent and co-ordinated response from various stakeholders, including business, if we are to ensure our collective future (Scheyvens, Banks & Hughes 2016; WEF 2018). The expectation of business as a key stakeholder in achieving the SDGs is made explicit in the UN 2030 *Agenda for Sustainable Development* (UN General Assembly 2015) that represents a significant global commitment to the sustainability agenda.

However, challenges related to business awareness, engagement, and implementation of strategy in relation to the SDGs are impeding change efforts (PwC 2016a). The perspectives and experiences of sustainability practitioners in companies in South Africa are also under-represented. Concurrently, a review of the literature suggests that while the utility of visuals is broadly acknowledged, their role in processes of sensemaking and sensegiving is underexplored (Meyer, Höllerer, Jancsary & van Leeuwen 2013; Garreau, Mouricou & Grimand 2015; Kassinis & Panayiotou 2017).

There is therefore an opportunity to explore how sustainability practitioners in companies in South Africa may use visuals in sensemaking and sensegiving of the SDGs. Visuals provide a link between the SDG iconography and communication trends in the modern world and are also an often-overlooked entry-point into sensemaking and sensegiving. My research undertakes to contribute to the organisational sensemaking/sensegiving literature and aid sustainability practitioners in understanding how visuals may be used in creating shared meaning and understanding of sustainability issues.

1.4 Research objectives

My research aims to explore the potential role of visuals in the processes of sensemaking and sensegiving by drawing insights from the engagement with, and understanding of, the SDGs by sustainability practitioners in companies in South Africa. This aim is supported by three sequential research objectives:

1. to establish the current engagement of companies with the SDGs, focusing particularly on the motivations, contributions, and challenges of such engagement;
2. to identify what visuals companies in South Africa are using in understanding and communicating on the SDGs;
3. to explore how sustainability practitioners in companies in South Africa may use visuals to contribute to the sensemaking and sensegiving of the SDGs.

The first research objective aims to improve our understanding of business' framing of sustainability by exploring companies' motivations for and contributions to the sustainability agenda. A discussion of business challenges when engaging with the SDGs motivates the further exploration of organisational understanding and influencing - sensemaking and sensegiving - of the SDGs.

Research objective 2 serves as a bridge between the first and third research objective, connecting business engagement with the SDGs to the use of visuals for understanding and sharing information.

Within the context provided by the first two research objectives, in research objective 3 I explore the role of visuals in sensemaking and sensegiving with the aim of providing both practical and theoretical insights.

1.5 Rationale for the research

The motivation for this study derives from the practical and topical importance of business engagement with the SDGs and the identification of the underexplored role of visuals in sensemaking and sensegiving in the organisational literature. The visual iconography of the SDGs provides a useful link between these practical and theoretical considerations while firmly situating the study within the field of sustainable development.

I anticipate that this study may provide insight into current engagement with the SDGs by companies in South Africa. In addition, through highlighting common experiences and challenges for business, my research may assist in identifying actions that are needed to support further engagement. I am optimistic that the research may also assist sustainability practitioners in companies in exploring how visuals may contribute towards both understanding and communicating on the SDGs. My research may also make a broader theoretical contribution to the organisational and sensemaking/sensegiving literature where the role of visuals is underexplored.

My own interest in this subject originates from my experiences working in a corporate environment. I have had the opportunity to observe and contribute towards the development of organisational strategy in support of the SDGs and I found this process to be quite challenging, frustrating, and uncertain. As an engineer working in a multidisciplinary team engaging with the SDGs, I became particularly interested in how meaning can be shared between individuals from diverse backgrounds and if visuals may be one way of achieving this.

1.6 Research limitations and assumptions

The scope of my study is limited to publicly traded companies on the Johannesburg Stock Exchange (JSE) in South Africa with large and medium market capitalisations. Market capitalisation refers to the value of a publicly traded company and is calculated by multiplying the company share price with the number of shares held by shareholders. This implies that I excluded all government-controlled entities, NGOs, and informal, small, and micro enterprises.

I assumed that all the companies that participated in the research have some exposure to the SDGs from within a South African context. This is a reasonable assumption as, during the research sampling process, I excluded all companies with a South African listing but limited operational presence in South Africa. While differences in experiences and perspectives between multi-national and local companies may remain, this falls outside the scope of this research.

There are additional limitations to the study related to time and resource availability. First, my research focused on the perspectives and opinions of sustainability practitioners on the role and utility of visuals. Therefore, I excluded the opinions of the recipients of the visual communication, such as management, peers, analysts, and consumers. Although including the perspectives of these groups may have provided rich contributions on the role of visuals in sensemaking and sensegiving, it would have rendered the scope of the research too broad when considering time and resource constraints. In addition, this study does not explore the cognitive processes involved in the processing of visuals and other forms of communication, nor does it serve as a detailed guide for the development of visuals to be used in relation to the SDGs or any other topics.

Lastly, during the research, I undertook to remain aware of my personal assumptions and bias. Although my involvement with the SDGs in a corporate environment was brief, and largely focused on providing engineering inputs, it is still possible that these experiences influenced my interpretation of the research. I used journaling and discussion with peers to remain aware and critical of this influence, which I detail further in Chapter 3 on Research design.

1.7 Research strategy

This study was exploratory and underpinned by a constructivist-interpretivist epistemological position. A constructivist paradigm reflects my perspective on social phenomena and is well-suited to an inductive research approach (Creswell 2014) that emphasises the perspectives of the research participants (Creswell 2014; Eisenhardt, Graebner & Sonenshein 2016).

Following from my research paradigm, I used a constructivist approach to grounded theory (Charmaz 2011) as the study methodology. Grounded theory is an established methodology for exploring organisational phenomena (Charmaz 2011), is well-suited for extending research on existing theoretical concepts (Charmaz 2011) (such as sensemaking and sensegiving), and may be applied to the study of 'grand challenges' (Eisenhardt, Graebner & Sonenshein 2016). These aspects suggest that a grounded theory methodology was well-suited for this study.

I adopted a mixed-methods approach to my research. My quantitative research findings, primarily based on survey results, provided valuable context that supported a more detailed qualitative exploration based on interviews and secondary data analysis.

The research process consisted of a literature review that provided me with a foundational understanding of the key authors and concepts of relevance to the research. I then held informal discussions to better frame the research objectives. I consulted the literature in an iterative process during data collection and analysis as I explored the themes emerging from the data. I made use of an electronic survey to provide quantitative and qualitative data in support of research objectives 1 and 2, and conducted semi-structured interviews, in-person and via telephone and Skype, that provided qualitative data in support of research objectives 1 to 3. I made use of secondary data analysis through a review of company reports and used journaling and discussion to prompt critical reflection.

I conducted my data analysis to establish the research findings related to company engagement with the SDGs, the use of visuals during this engagement, and the broader potential for visuals to support sensemaking and sensegiving. I primarily used frequency tables and coding in the analysis of my quantitative and qualitative data respectively.

1.8 Chapter outline

This chapter has provided the background and rationale for the study, as well as presented the problem statement, research objectives, and research scope. It has also introduced the research strategy that is more fully discussed in Chapter 3.

In Chapter 2, I provide a critical review and analysis of the literature related to the key themes in this study. These include corporate sustainability, sensemaking and sensegiving, and a discussion of visuals and visual communication. Together, these themes form the theoretical framework for the study. Though this chapter appears second in the dissertation, it was developed iteratively and influenced by the research findings.

Chapter 3 substantiates the use of a constructivist research paradigm for the study. I then discuss the use of a grounded theory methodology and a mixed-methods research approach, followed by a detailed description of the research process including my research methods, data collection, and data analysis process. The chapter concludes with a reflection on how issues of validity were managed in the study.

In Chapter 4, I present my inductively derived research findings. The findings are presented for each of the research objectives presented in Section 1.4 above. First, I present my findings on the engagement of companies in South Africa with the SDGs. Next, I explore what visuals companies in South Africa are using in understanding and communicating on the SDGs. The findings from these two sections then provide rich context for the exploration of the role of visuals in support of sensemaking and sensegiving.

In Chapter 5, I conclude the study by outlining how the research findings and discussion address the research objectives presented in this chapter. I also provide recommendations for further scholarship and my own reflections on the research.

Chapter 2 - Literature review

2.1 Introduction

In this chapter, I explore the key themes and theoretical constructs that provide the context for my research. First, I introduce the study context. I use the concept of the Anthropocene, introduced in Chapter 1, as a point of orientation to briefly discuss the events leading up to the 1987 release of the influential report *Our Common Future* by the World Commission on Environment and Development (WCED). *Our Common Future* provides the entry-point to my exploration of the relationship between business and the sustainability agenda. I consider the changing expectations of the role of business and consider the critique of business as a partner for sustainability. I discuss the imperative for business engagement and how companies have contributed to sustainable development. I then explore the motivations and challenges for business engagement with the sustainability agenda and the SDGs, including insights from a South African perspective.

Next, I explore the theoretical constructs of sensemaking and sensegiving. I examine the development, characteristics, and triggers for sensemaking/sensegiving and its use in the organisational and sustainability literature. I then consider the importance of language and emotion for sensemaking and sensegiving.

Following this, I explore how visuals are underexplored in the organisational and sensemaking/sensegiving literature. Then, through the inclusion of literature related to the role of visuals in communication and boundary objects, I consider the characteristics of visuals and their use in relation to sustainability themes. I conclude with a brief reflection on the challenge for future visual research.

2.2 Towards *Our Common Future*

While human beings have always influenced their environment (Steffen, Crutzen & McNeill 2007), the fossil-fuel powered Industrial Revolution of the 18th century (Mebratu 1998) has “irrevocably transform[ed] human societies” (du Pisani 2006:84). However, as material growth, technological development, and human populations burgeoned, environmental degradation and social inequalities intensified (du Pisani 2006; Wells 2013). For Crutzen and Stoermer (2000), the Industrial Revolution marked the beginning of the Anthropocene, an on-going epoch dominated by the geological and ecological influence of humankind.

Yet, as early as the 1960s, four decades before the 'Anthropocene' entered our lexicon, modern environmentalism was already on the rise (Rome 2003). Indeed, scholars have long considered Rachel Carson's *Silent Spring*, released in 1962, as the inspiration for the contemporary environmental movement (Lutts 1985; Khondker 2015).

Other sustainability-themed publications followed the release of *Silent Spring*. In 1968, Garrett Hardin released *The Tragedy of the Commons* describing the consequences of exploiting shared natural resources. The Club of Rome published *The Limits to Growth* in 1972, cautioning against unchecked human and economic expansion, and in the same year, the notion of sustainable development entered the global consciousness at the UN Conference on the Human Environment (du Pisani 2006). Then, in 1987, the WCED released *Our Common Future*, and offered the most commonly cited and influential conceptualisation of sustainable development (Mebratu 1998; Swilling & Annecke 2012) as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987).

2.3 Business and sustainable development

Although the notion of sustainability did not begin with *Our Common Future*, this seminal report is often used as the basis for contemporary discussion on sustainable development (Mebratu 1998). Therefore, it is noteworthy that this report directly addresses business and its potential to significantly contribute to the sustainability agenda (WCED 1987).

Since *Our Common Future*, the role of business in the sustainability discourse has been progressively highlighted at prominent multi-stakeholder gatherings such as the 1992 Earth Summit in Rio de Janeiro, the 2002 World Summit on Sustainable Development (WSSD) held in Johannesburg and, more recently, in 2015, at the Paris Climate Conference and the UN Sustainable Development Summit at which the SDGs were adopted (Murthy 2012; Kolk 2016; Scheyvens, Banks & Hughes 2016). Therefore, it is evident that business is an established stakeholder in the sustainability discourse.

However, the expected contribution of business to sustainability has changed over the decades. In the following three sections I discuss key aspects of the changing role of business in the sustainability discourse.

Starting from a focus on business compliance to environmental regulations in the 1960s and early 1970s (Warhurst 2005; Hoffman & Ehrenfeld 2015), I consider the rise and development of the notion of corporate social responsibility (CSR) throughout the 1970s (Carroll 1999) and the progression of corporate sustainability as a form of risk mitigation during the 1980s and 1990s (Warhurst 2005; Hoffman & Ehrenfeld 2015). Then, propelled by events such as the 1992 Earth Summit and the 2002 WSSD conference, I discuss how corporate strategy has increasingly included aspects of sustainability (Warhurst 2005; Hoffman & Ehrenfeld 2015) accompanied by “a surge of enthusiasm for ways in which the private sector can contribute to achieving sustainable development goals” (Scheyvens, Banks & Hughes 2016:372). I then consider how current expectations of business may have shifted once more to include business as a leader of the sustainability and developmental agenda (Scheyvens, Banks & Hughes 2016). Throughout the discussion, I consider relevant critiques of corporate sustainability and its application by business.

2.3.1 The 1960s and early 1970s: Sustainability as regulatory compliance

In the 1960s and early 1970s, at the time that *Silent Spring* was published, businesses were largely focused on regulatory compliance (Warhurst 2005; Hoffman & Ehrenfeld 2015). During this time, companies established departments mandated to ensure compliance with safety and environmental legislation that had been established, in part, due to increased public awareness of the degradation of the natural environment and poor working conditions for labourers and other employees (Hoffman & Ehrenfeld 2015).

The relationship between business, society, and the environment at this time may be considered to be ‘disparate’ (Marcus, Kurucz & Colbert 2010). From a disparate perspective, illustrated in Figure 2.1, the economy is of primary importance, while environmental and social issues are deemed as peripheral to business and considered only for their influence on economic or regulatory frameworks (Marcus, Kurucz & Colbert 2010).

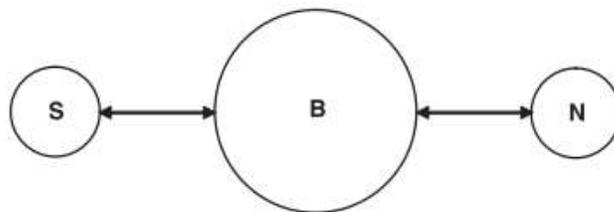


Figure 2.1: The disparate view of business (B), society (S), and nature (N)
Source: Marcus, Kurucz, and Colbert (2010)

The view that “virtue lies in the vigorous, undiluted assertion of the corporation’s profit-making function” (Levitt 1958:42) was famously, and controversially, captured by the economist Milton Friedman (1970), who advocated that a business’ only social responsibility was the maximisation of profits. From this disparate perspective, addressing aspects of social welfare and the developmental agenda is the sole responsibility of government (Marcus, Kurucz & Colbert 2010).

2.3.2 Mid-1970s to the 21st century: The proliferation of CSR and sustainability as risk mitigation

It was also in the 1970s that the idea of CSR, which started as an exploration of the social responsibilities of businessmen in the 1950s, proliferated in the academic literature (Carroll 1999). CSR was broadly defined as business decisions and activities that extended beyond a narrow consideration of direct economic benefits to the company (Davis 1960; Frederick 1960). Corporate philanthropy initiatives as part of CSR were common (Carroll 1999), as business increasingly considered that “its basic purpose [was] to serve constructively the needs of society - to the satisfaction of society” (Committee for Economic Development 1971:11).

Starting in the late 1970s to the 1990s, and driven in part by the release of publications such as *Our Common Future* and crises such as the Bhopal disaster, the fatal release of toxic gas from an industrial complex in India, companies increasingly considered sustainability as a form of risk mitigation (Warhurst 2005; Hoffman & Ehrenfeld 2015). In the 1990s, the management literature also started to consider environmental influences and risks for business (Marcus, Kurucz & Colbert 2010). According to Warhurst (2005), by the close of the 1990s, companies were increasingly aware that their influence, risks, and responsibilities extended far beyond their ‘perimeter fence’.

Concurrently, the CSR discourse had also started to grow to include a variety of terms such as ‘corporate social performance,’ ‘triple-bottom line,’ and ‘corporate citizenship’ as a reflection of the changing dynamics in the relationship between business, society, and the environment (Carroll 1999; Valor 2005; Murthy 2012; Kolk 2016). These concepts extend beyond notions of corporate philanthropy and the minimisation of harm (Warhurst 2005).

For example, aspects of corporate citizenship relate to the provision of public goods by the private sector and business' advancement of social interests, human rights, and the protection of the natural environment (Aßländer & Curbach 2014; Tempels, Blok & Verweij 2017). In addressing these elements of corporate citizenship, companies may also ensure their own operational viability as “social and environmental factors...provide the very foundations from which business operates” (Marcus, Kurucz & Colbert 2010:411).

The on-going refinement of CSR and aspects of corporate sustainability as a reflection of the “changing social contract between business and society” (Carroll 1999:275), and the recognition that social and environmental issues are of strategic importance to business (Warhurst 2005; Hoffman & Ehrenfeld 2015), may reflect a shift to an ‘intertwined’ view of business, society, and nature (Marcus, Kurucz & Colbert 2010) as shown in Figure 2.2. From this perspective, social and environmental influences, consequences, and opportunities are interwoven and interdependent with economic activity (Marcus, Kurucz & Colbert 2010). The intertwined perspective is the most common conceptualisation of the relationship between business, society, and nature in the organisational and management literature (Marcus, Kurucz & Colbert 2010).

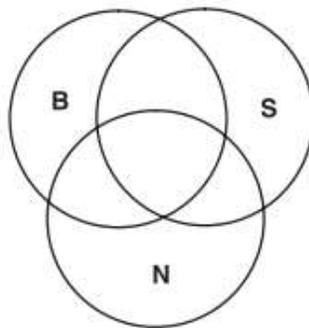


Figure 2.2: The intertwined view of business (B), society (S), and nature (N)
Source: Marcus, Kurucz & Colbert (2010)

However, some scholars remain critical of the application of corporate sustainability concepts even from within an intertwined perspective (Milne & Gray 2013). For example, Crane (2000) argues that businesses often engage in ‘corporate greening’ without any deeper ethical motivations and according to Marcus, Kurucz, and Colbert (2010:418), “we continue to see profit pursuits leave a devastating trail of ecosystem impacts”.

2.3.3 Post 2015: Business as a leader for the sustainability agenda

The 2015 UN Sustainable Development Summit may have marked another shift in the expectation of business' contribution to the sustainability agenda (Scheyvens, Banks & Hughes 2016). As expressed by the UN Secretary-General Ban Ki-moon (2015:para.6) after the adoption of the SDGs, “[g]overnments must take the lead in living up to their pledges. At the same time, I am counting on the private sector to drive success”. Business may now be expected to not only contribute towards, but also lead the sustainability and developmental agenda and directly “contribute toward global governance around sustainable development” (Scheyvens, Banks & Hughes 2016:276). According to Kolk (2016:31), the contemporary business literature includes references to topics such as “poverty, inequality, peace and conflict”, signifying the broadening of the sustainability scope for business.

Contemporary corporate sustainability therefore requires businesses to pursue profits *and* act on issues related to economic, social, and environmental development (Wilson 2003), while ensuring that current and future stakeholder demands can be adequately met (Dyllick & Hockerts 2002; Hahn, Pinkse, Preuss & Figge 2015). Therefore, it is evident that “business has [now] been recast as a key stakeholder in the sustainable development conversation alongside government, civil society, and NGOs” (Murthy 2012:6).

However, scholars question whether it is reasonable to expect business to act as a ‘magic bullet’ for development (McEwan, Mawdsley, Banks & Scheyvens 2017). After all, the traditional objectives of business differ from those of government or a NGO (Lucci 2012; Scheyvens, Banks & Hughes 2016). Indeed, social and environmental agendas may even be seen to compete with economic objectives (Murthy 2012; Robinson 2012). As a result, some scholars argue that the developmental lead role should remain the responsibility of government and other institutional regulators (Agarwal, Gneiting & Mhlanga 2017). Other scholars assert that contemporary corporate sustainability initiatives often do not address the underlying exploitative activities of modern business, capitalism, and neo-liberal economic policies, such as the uncompromising pursuit of growth (Milne & Gray 2013; Kumi, Arhin & Yeboah 2014; Pogge & Sengupta 2015).

A shift to an ‘embedded’ perspective of the relationship between business, society, and the environment may resolve many of these critiques. From an embedded view, shown in Figure 2.3, business is nested within society that itself is situated in and constrained by the natural environment (Marcus, Kurucz & Colbert 2010; Dobson & Bertels 2017).

This perspective recognises that economic success is an inadequate measure of overall social and environmental well-being, that social instability undermines business success, and that there are unavoidable physical limits to growth (Marcus, Kurucz & Colbert 2010).

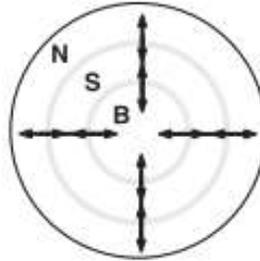


Figure 2.3: The embedded view of business (B), society (S), and nature (N)
Source: Marcus, Kurucz & Colbert (2010)

Although Dobson and Bertels (2017) suggest that 'leading companies' are increasingly shifting toward such an embedded, or nested, perspective of sustainability, it remains under-represented in the management literature (Marcus, Kurucz & Colbert 2010) as companies disproportionately engage in a 'business-case' approach to sustainability that favours economic shareholders (Dyllick & Hockerts 2002; Margolis & Walsh 2003; Hahn et al. 2014). Yet, according to Luke (2013:87), "[g]rowth cannot solve all social problems, especially those it creates for itself as such." In addition, for business to act as a credible partner for sustainability, it should acknowledge its own contribution towards unsustainable development (Pogge & Sengupta 2015; Agarwal, Gneiting & Mhlanga 2017).

2.3.4 The imperative for business engagement with sustainable development

While business may be complicit in exacerbating social injustice and ecological degradation (Warhurst 2005; Murthy 2012; Scheyvens, Banks & Hughes 2016), the consequences of unsustainable development now threaten business itself (Porter & Reinhardt 2007; Dobson & Bertels 2017; WEF 2017). Therefore, in this section, I discuss the urgency of the sustainability agenda for business. I consider how social and environmental instability poses a risk to business (Porter & Reinhardt 2007; Dobson & Bertels 2017; WEF 2017) and how increasing internal and external stakeholder pressure may shift corporate sustainability strategy (Brønn & Vidaver-Cohen 2009; Lucci 2012; Dobson & Bertels 2017).

Environmental degradation threatens business due to its operational dependence on underlying ecological systems and finite natural resources (Whiteman, Walker & Perego 2013; BSDC 2017). Climate change is already affecting supply chains by introducing variability in the availability of agricultural products and extreme weather events are increasingly disrupting commercial transportation (Bals 2012).

Social and political tensions also pose a risk to the stability of business operations (Murthy 2012; GRI, UNGC & WBCSD 2015; BSDC 2017). For example, as described by Bapuji (2015), high levels of economic inequality may negatively affect human cognition, workplace interactions, and competitive dynamics within an industry. In addition, increasing external stakeholder pressure (Brønn & Vidaver-Cohen 2009; Lucci 2012), the need to attract and retain increasingly socially and environmentally aware employees (Brønn & Vidaver-Cohen 2009; BSDC 2017), and, in some instances, a moral inclination to contribute to local communities (Lucci 2012) and lead purpose-driven organisations (Dobson & Bertels 2017), suggests that corporate sustainability will become increasingly relevant for companies.

2.3.5 The contribution of business to the sustainability agenda

In spite of the “uneasy merger of sustainability and development” (Luke 2013:83), it is evident that “[b]usiness and its activities are inextricably both part of the problem as well as the solution” (Warhurst 2005:155). Indeed, business has long contributed human, technological, and financial resources towards social and environmental objectives (Shrivastava 1995; Murthy 2012; Scheyvens, Banks & Hughes 2016).

For example, companies have used their logistics networks to distribute information and materials required for family planning (Shrivastava 1995) or utilised their supply chains to support local production networks (Lucci 2012). Companies have also directly funded developmental initiatives (Scheyvens, Banks & Hughes 2016). Indeed, since the 2007/8 financial crisis, there has been increased pressure on the private sector to financially support developmental objectives that are constrained by the reduced availability of public funding (Scheyvens, Banks & Hughes 2016).

Numerous examples also serve to demonstrate that companies can successfully align social and environmental goals with traditional business objectives (Scheyvens, Banks & Hughes 2016; UNGC 2017). In the consumer goods market, Unilever has established itself as a leader in corporate sustainability (Whiteman, Walker & Perego 2013) by developing several initiatives aimed at improving environmental and social practices, such as programmes supporting sustainable palm oil supply chains (Unilever 2018). In the financial services sector, sustainability considerations have led to the development of technological innovations such as M-PESA, a mobile phone-based banking system that has expanded access to financial services, particularly for those in rural areas (Lucci 2012). The developers of M-PESA were recognized on the 2018 Fortune *Change the World* list that identifies how sustainability problems are being solved “through the only sustainable and scalable problem-solving machine we know of: business” (Leaf 2018).

Though the dominant business discourse may continue to emphasise the economic aspects of corporate sustainability (Robinson 2012; Hahn et al. 2015; Hahn, Figge, Aragón-Correa & Sharma 2017), results from PwC’s (2016c) 19th annual global survey of chief executive officers’ (CEOs’) perspectives revealed that 76 percent of CEOs consider business success as more than just the achievement of financial targets. There are also several voluntary business initiatives, such as the UNGC, that aim to guide companies in implementing corporate sustainability strategy (UNGC n.d.). Considering these drivers and trends, it appears that the Friedman doctrine for corporate sustainability has become inadequate (Warhurst 2005).

2.4 Business and the SDGs

Having broadly explored the evolving relationship between business and sustainability, in this section, I specifically discuss business engagement with the SDGs (illustrated in Figure 1.2). The 17 SDGs, adopted in 2015 during the UN Sustainable Development Summit aim to adjust the unsustainable trajectory of human development (UN General Assembly 2015). The SDGs differ from previous developmental agendas as they integrate environmental, social, and economic goals, were developed via a ‘hyper-participatory’ process, and, as the goals are applicable to countries of both the Global North and South, represent a global framework for action on sustainability (Scheyvens, Banks & Hughes 2016). Importantly, the SDGs, which directly call upon business leadership and creativity to solve pressing social and environmental challenges (UN General Assembly 2015), shift expectations of the role of business in the sustainability agenda (Scheyvens, Banks & Hughes 2016).

In the discussion that follows I explore the motivations, criticisms, and challenges for business engagement with the SDGs. The discussion is framed by the broader sustainability discourse before providing specific examples related to the SDGs. I conclude the section with an overview of current trends of business engagement with the SDGs in South Africa.

2.4.1 Business motivations for engagement with sustainability and the SDGs

Scholars have explored different motivations for business engagement with corporate sustainability initiatives (Carroll 1999). These include the use of socio-environmental programmes to sustain the long-term generation of profits, social responsibility as an add-on post the maximisation of profits, or the equal consideration of social, environmental, and financial objectives in the pursuit of business success (Carroll 1999; Schwartz & Carroll 2003).

Other motivations for business engagement with the sustainability agenda may include legal imperatives (Bansal & Roth 2000), ethical commitments (Bansal & Roth 2000; Heikkurinen & Bonnedahl 2013), investor pressure (Margolis & Walsh 2003), or the need to secure a social licence to operate (Bansal & Roth 2000; Wilson 2003; Gunningham, Kagan & Thornton 2004; Warhurst 2005).

The reasons for business engagement with the SDGs, to some extent, form part of these broader motivations to commit to a sustainability agenda. For example, Gunningham, Kagan, and Thornton (2004:208) refer to a social licence to operate as a reflection of the “demands on and expectations for a business enterprise that emerge from neighbourhoods, environmental groups, community members, and other elements of the surrounding civil society”. This social licence relies on trust between business and society and reflects the perceived credibility, or ‘reputation capital’, of the business (Gunningham, Kagan & Thornton 2004). According to Bachmann, Gillespie, and Priem (2015), trust in business has significantly declined in recent years. This view is shared by the BSDC (2017) and findings from the 2018 *Edelman Trust Barometer* show that globally only slightly more than half of society trusts business. Therefore, to regain society’s trust, business may need to support the SDGs and enter into partnerships that work towards achieving the Global Goals (BSDC 2017).

There is also an economic case for business engagement with the SDGs (GRI, UNGC & WBCSD 2015). According to the BSDC (2017:7) addressing “poverty, inequality, and lack of financial access” may create new markets and business opportunities. The SDGs may directly promote an industrial efficiency, with resultant financial savings for business, while other targets, such as those associated with health and education, may indirectly benefit business productivity (BSDC 2017). Overall, the ‘SDG prize’ is valued at \$12 trillion annually by 2030 (AlphaBeta 2017).

In addition, business may choose to respond to sustainability expectations to fulfil legal requirements (Bansal & Roth 2000). The SDGs may indicate global sustainability policy trajectory (GRI, UNGC & WBCSD 2015; BSDC 2017) and a timeous response from business may forestall even more stringent regulatory requirements (BSDC 2017).

Lastly, although far less represented in the academic literature, if business fails to support the transition to a more sustainable developmental trajectory, there may no longer be a “viable world to do business in” (BSDC 2017:17). In short, business is interwoven into its environmental and social context (Agarwal, Gneiting & Mhlanga 2017). For companies, the SDGs offer a means of linking business strategy with some of the most important global sustainability goals, and a way of ensuring the longer term resilience of their operating contexts (GRI, UNGC & WBCSD 2015).

2.4.2 The criticisms and benefits of business engagement with the SDGs

As previously explored, some scholars have remained critical of the link between business and sustainability. In relation to the SDGs specifically, Scheyvens, Banks, and Hughes (2016) suggest that the significant participation of the private sector in the development of the Global Goals may have resulted in a business-friendly outcome that champions economic growth, the pursuit of technological development, and the continuation of a neo-liberal agenda. Other criticisms relate to the imbalance of power between business and other stakeholders that may have suppressed contestation and debate during the development of the SDGs (Koehler 2015).

Yet, despite these criticisms, there are multiple stakeholder benefits associated with business involvement with the SDGs. Even before the finalisation of the Global Goals, scholars anticipated that without the financial contribution and “advanced technologies and management systems” of the private sector it would be difficult to achieve the SDGs (Sachs 2012:2210). In particular, businesses possess the financial and human resources, global value chains, and leadership capabilities that are needed to advance the Global Goals (GRI, UNGC & WBCSD 2015; Scheyvens, Banks & Hughes 2016). Indeed, the United States Council for International Business (2018) currently provides examples of business initiatives in support of more than half of the SDG targets. According to Scheyvens, Banks, and Hughes (2016), traditional business activities are particularly well-suited to contribute towards objectives of *The 2030 Agenda for Sustainable Development* that relate to employment, industrial expansion, and the production and consumption of goods.

2.4.3 Sustainability and the SDGs: Challenges for business

Despite the strong imperatives and opportunities offered by the sustainability agenda, the understanding and engagement of business with aspects of corporate sustainability remains challenging. Businesses are required to integrate economic, social, and environmental objectives (Ferraro, Etzion & Gehman 2015; Hahn et al. 2015; Scheyvens, Banks & Hughes 2016), while contending with challenges such as consumer demand for goods, investors’ expectations for economic returns, organisational inertia, and regulatory uncertainty (Shrivastava 1995; Dyllick & Hockerts 2002; de Jongh & Möllmann 2014; Hahn et al. 2015).

Corporate sustainability also requires a broad consideration of stakeholders (Wilson 2003; Hoffman & Ehrenfeld 2015). This diversity of stakeholders, and their often competing expectations, may be challenging for businesses to reconcile (Hahn et al. 2015; Scheyvens, Banks & Hughes 2016). For example, Hall and Martin (2005) describe how Monsanto, during their development of genetically modified seeds, struggled to balance considerations of economic returns to shareholders with social advocacy concerns that the seeds would render farmers in the Global South fully dependent on ‘Western seed companies’. Even when stakeholders share common goals, their prioritisation may vary between the different groups (Wilson 2003).

Companies may also experience practical challenges in delivering on their sustainability strategy. For example, the markets where a company operates may constrain their sustainability focus. According to Murthy (2012), companies operating in the Global South are more likely to be expected to contribute towards social rather than environmental objectives. Business leadership may also struggle to implement sustainability strategies as they are confronted with a corporate culture that is resistant to change, as well as a plethora of reporting and measurement standards for sustainability (Crews 2010).

This broad discussion frames many of the challenges that businesses may experience when engaging with the SDGs. For example, when considering practical challenges, practitioners may consider the process of identifying the goals that are of most relevance to their business as confusing and often ask 'where to start' (PwC 2016b). Although many practitioner guides, such as the SDG Compass (GRI, UNGC & WBCSD 2015), provide methods to identify and select relevant SDGs, the variety of techniques and tools that are available may possibly lead to additional confusion. PwC (2017) also highlights that this prioritisation process may be resource intensive for smaller companies and that translating the Global Goals into action at a local level may prove challenging for most organisations.

Companies are also expected to measure and report on their progress in relation to the SDGs (PwC 2017; Silicon Valley Community Foundation [SVCF] 2017). However, there is currently no established framework or benchmark for reporting on the SDGs (PwC 2017; KPMG 2018). Hak, Janouskova, and Moldan (2016) highlight the importance of quantitative indicators for the overall sustainability agenda and for operationalising the SDGs. However, business reporting on the SDGs is largely qualitative, while quantitative reporting is only available for well-established measurements such as company greenhouse gas (GHG) emissions or employee demographics (PwC 2017).

Overall, consolidated findings on business engagement with the SDGs is limited in the literature. Indeed, Scheyvens, Banks, and Hughes (2016), remark that the role of the private sector in operationalising the SDGs has largely been written about by sustainability practitioners. In addition, while countries of the Global South have largely borne the consequences of unsustainable global development and economic expansion (du Pisani 2006; Swilling & Annecke 2012), a Global South perspective is particularly underexplored. Therefore, experiences from the Global South in engaging with the SDGs may be especially worthwhile and relevant to the corporate sustainability agenda. In the following section, I provide some insights from a South African perspective.

2.4.4 Current trends of business engagement with the SDGs in South Africa

In 2015, South Africa was included in a global survey on business engagement with the SDGs (PwC 2016b). Of the 31 companies that responded to the survey, 87 percent indicated an awareness of the SDGs. However, when contrasted against the low level of awareness by the citizenry (28%), it is possible that only businesses that were already engaged with the SDGs responded to the survey, increasing the reported levels of awareness (PwC 2016b). Most respondents (64%) also indicated that they were in the process of implementing, or intended to implement, plans related to the SDGs. Yet, less than half anticipated that the SDGs would be embedded in corporate strategy by 2020 (PwC 2016b). These trends reflect the current early stages of overall engagement with the SDGs by companies in South Africa.

Malan's (2016) findings appear to support this assertion. Malan (2016) analysed the number of references to the SDGs by active South African signatories to the UNGC, at the time of analysis, in their Communication on Progress reports; most of which were issued in 2014 or 2015. Of the 36 reports analysed, only 6 made any reference to the SDGs. Malan (2016) suggests that as the SDGs were already available in draft format by 2014, it is reasonable to expect some reference to the Global Goals even in company reports issued in 2014.

According to the PwC (2016b) survey, companies in South Africa highlighted SDG 8 (decent work and economic growth), SDG 9 (industry, innovation, and infrastructure), and SDG 4 (quality education) as the goals that business would be most able to influence and contribute towards. While these align with scholars' observations that business is ideally placed to contribute towards these specific objectives (Scheyvens, Banks & Hughes 2016), it is worth noting that the South African society largely prioritised different goals, such as SDG 2 (zero hunger). Therefore, there may be a need for business to better understand and communicate how their prioritised goals support the expectations of the broader society.

Following global trends, different sectors in South Africa have prioritised the goals that appear to most seamlessly align with their business activities (PwC 2016b). For example, healthcare companies have overwhelmingly prioritised action on SDG 3 (good health and well-being) (PwC 2016b). While business is encouraged to prioritise goals that align with their expertise, strategic objectives, and areas of influence (PwC 2016a), companies are also encouraged to explore 'unanticipated' ways of contributing to less immediately apparent goals and targets (GRI & UNGC 2018).

A consideration of the interconnected nature of the goals may assist companies in evaluating their potential contribution across the 169 targets (PwC 2017). However, most companies appear to have independently evaluated each of the 17 goals (PwC 2016b). This may suggest that companies are struggling to engage with the interconnected and detailed nature of the goals and underlying targets.

South Africa's implementation of the SDGs is further challenged by competing priorities across different levels of governance and inadequate analytical capacity and research on the implementation of sustainability solutions (Dayal 2018). In addition, its historical context has resulted in "two worlds in one country" and a subsequent conflicting prioritisation between different stakeholder groups (Dayal 2018:14).

The discussion in this section suggests that companies, both globally and in South Africa, are grappling with understanding and communicating their engagement with the SDGs. Some of these challenges are operational, such as the lack of a comprehensive reporting framework for the SDGs (KPMG 2018). However, it appears that there are also interpretive challenges. For example, companies need to engage with a broad number of targets, while reconciling competing stakeholder expectations, when considering which goals are most relevant to their business. This is illustrated by the findings of the PwC (2016b) survey that highlighted a misalignment between the goals deemed most relevant by South African companies and the broader society.

Challenges of scanning and interpreting information on the SDGs allude to a challenge of understanding, or as considered in the sensemaking literature, a challenge of "constructing and interpreting the world" (Gephart 1993:1485). Sustainability practitioners may also be expected to explain and influence understanding of their company's sustainability strategy in response to criticisms such as business' neo-liberal framing of the SDGs (Scheyvens, Banks & Hughes 2016). These processes of sharing meaning and influencing the understanding of others are captured by the notion of sensegiving (Gioia & Chittipeddi 1991). Therefore, in the following section, I explore the theoretical constructs of sensemaking and sensegiving - of scanning, interpreting, explaining, and influencing - that provide the framework for my exploration of business engagement with the SDGs.

2.5 Sensemaking and sensegiving

In this section I explore the development, definition, triggers, and processes involved in sensemaking/sensegiving. I also consider the application of sensemaking/sensegiving to organisational and sustainability themes, providing a framework for my study that is both topical and significant. Finally, I consider the importance of emotion, language, and narrative to sensemaking and sensegiving.

2.5.1 The development of sensemaking and sensegiving

The broad notion of sensemaking first appeared in the literature in the early 20th century and was used in an organisational context by Weick in 1969 (Maitlis & Christianson 2014). During the decades that followed, scholars explored the relationship between beliefs and experienced reality, the triggers and processes of sensemaking, and the links between sensemaking and action (Maitlis & Christianson 2014). Then, in 1995, Weick's *Sensemaking in Organizations* advanced sensemaking as a prominent field of academic enquiry (Maitlis & Christianson 2014).

Scholars have since explored the role of language and communication as the basis of the sensemaking process (Weick, Sutcliffe & Obstfeld 2005; Maitlis & Christianson 2014). For example, Boyce (1995:107) stated that “story and storytelling [is] a symbolic form by which groups and organizational members construct shared meaning and collectively centre on that meaning”; an expression that closely aligns with our current understanding of sensemaking/sensegiving.

Scholars have also advocated for a closer exploration of the role of emotion in sensemaking/sensegiving (Maitlis & Christianson 2014). Weick, Sutcliffe, and Obstfeld (2005:418) note that “sensemaking in organizations will often occur amidst intense emotional experience” and proposed that future research explore the relationship between sensemaking/sensegiving and emotion more fully. Emotion and language are important themes identified in my research and are further explored in sections 2.5.6 and 2.5.7 respectively.

Sensegiving was popularised by Gioia and Chittipeddi (1991) who employed the term to describe how leaders influence the sensemaking processes of other organisational members. Research on sensegiving is often focused on exploring such processes of influence, explanation, and justification (Maitlis & Lawrence 2007). In comparison to sensemaking, the conceptual exploration of sensegiving in the academic literature is limited (Smerek 2011). However, the processes of sensemaking and sensegiving – of ‘understanding’ and ‘influencing’ - are often interwoven and mutually indistinct (Gioia & Chittipeddi 1991; Gioia, Thomas, Clark & Chittipeddi 1994).

2.5.2 Defining sensemaking and sensegiving

There are multiple definitions of sensemaking in the academic literature (Maitlis & Christianson 2014). Indeed, sensemaking has, amongst others, been referred to as a framework (Weick 1995), a lens (Vough 2012), and a theory (Holt & Cornelissen 2014). Though the concept is broadly used in the literature to refer to general processes of meaning-making or the development of understanding (Maitlis & Christianson 2014), I favour Maitlis and Christianson's (2014:57) characterisation of sensemaking as “the process through which people work to understand issues or events that are novel, ambiguous, confusing, or in some other way violate expectation”.

Defining sensegiving is also challenging. However, taking into account Polanyi's (1967) earlier reference to a process similar to ‘sensegiving’ as a way of imparting meaning through speech, I consider sensegiving as “attempting to influence the sensemaking and meaning construction of others toward a preferred redefinition of [organizational] reality” (Gioia & Chittipeddi 1991:442).

Though it is necessary to provide some definitional frame for these concepts, for Rouleau (2005:1415), the processes of sensemaking and sensegiving are “two sides of the same coin” and therefore inextricably connected. As such, although in this report I broadly consider processes of understanding and interpreting as related to sensemaking, while linking expressions of influence and justification to sensegiving, I also use the expression ‘sensemaking/sensegiving’ to refer to the interrelated processes of constructing and sharing meaning. As described by Gioia and Chittipeddi (1991), sensemaking and sensegiving is iterative, interrelated, and due to its social construction, may co-exist between the different actors involved in the process of meaning-making.

2.5.3 Triggers for sensemaking and sensegiving

In this section, I briefly discuss the potential triggers for sensemaking and sensegiving. Disruptive, novel, or unexpected events, which may have multiple and contradictory interpretations, may trigger sensemaking (Weick, Sutcliffe & Obstfeld 2005; Maitlis & Christianson 2014; Sandberg & Tsoukas 2015). These may include legal, technological, or environmental changes (Maitlis & Christianson 2014).

Sensemaking may also be triggered by challenges to existing organisational frameworks, such as those for competitive advantage (Maitlis & Christianson 2014). This is particularly relevant for corporate sustainability “as business leaders increasingly refer to sustainability as one of the lynchpins of competition within their sector” (Millar, Hind & Magala 2012:490). From a business perspective, these events create ‘discontinuities’ or ‘variations’ in the organisational environment (Maitlis & Christianson 2014). If existing organisational behaviours and activities cannot be easily resumed after the disruption, sensemaking is engaged (Weick, Sutcliffe & Obstfeld 2005).

Maitlis and Christianson (2014) emphasise that not all unexpected or confusing events will trigger sensemaking. However, when organisational culture or structures are challenged, there is uncertainty as to the appropriate response to a disruption, or there is a discrepancy between the desired response and contextual expectations, sensemaking will likely be triggered (Maitlis & Christianson 2014).

The process of sensegiving may shape the outcomes of organisational sensemaking (Maitlis & Lawrence 2007). According to Maitlis and Lawrence (2007), sensegiving may be triggered for employees when they consider an issue to be important to the organisation or themselves, or consider management as ill-equipped to manage the sensemaking process. For leaders, sensegiving may be triggered when the sensemaking process involves multiple stakeholders who may hold divergent opinions (Maitlis & Lawrence 2007).

2.5.4 The processes involved in sensemaking and sensegiving

In this section, I explore Rouleau’s description of sensemaking and sensegiving and describe some of the key activities that individuals may engage in during sensemaking/sensegiving, such as interpreting information and sharing ideas with others.

According to Rouleau (2005:1415):

[S]ensemaking has to do with the way managers understand, interpret, and create sense for themselves based on [the] information... Sensegiving is concerned with their attempts to influence the outcome, to communicate their thoughts about the change to others, and to gain their support.

In line with this definition, many scholars broadly associate sensemaking with three key interconnected processes of scanning, interpreting, and acting (Daft & Weick 1984; Thomas, Clark & Gioia 1993; Sandberg & Tsoukas 2015). During scanning, individuals notice, focus on, and then extract relevant cues from their environment for further interpretation (Maitlis & Christianson 2014). These cues may originate from internal or external sources and may be both personal or impersonal (Daft & Weick 1984). According to Sandberg and Tsoukas (2015), during this stage actors create an initial sense of the experience or event. Actors may also label and connect different cues while selecting the most relevant information for further interpretation (Sandberg & Tsoukas 2015).

Information and relevant cues are then interpreted with the aim of generating meaning and an ordered narrative of events (Maitlis & Christianson 2014; Sandberg & Tsoukas 2015). According to Daft and Weick (1984:286), interpretation is the process of “translating [these] events, of developing models for understanding, of bringing out meaning, and of assembling conceptual schemes [among key managers]”. It is worth noting that many authors only equate sensemaking with the process of interpretation (Sandberg & Tsoukas 2015).

After interpretation, action is initiated (Hahn et al. 2014). According to Sandberg and Tsoukas (2015), actors now aim to restore order to their environment. Importantly, the outcomes of the actions that are taken will reconstitute the actors’ environment and may further influence and alter the sensemaking process (Porac & Thomas 2006; Sandberg & Tsoukas 2015).

Sandberg and Tsoukas (2015) highlight that scanning and interpreting are iterative, while Maitlis and Christianson (2014) emphasise that actors will often cycle between the processes of interpretation and action. Indeed, the activities of scanning, interpreting, and acting should be considered as iterative and non-linear.

While the modification of an actor's environment may be an unintended outcome of sensemaking, during sensegiving actors actively attempt to influence their environment using verbal, textual, and visual methods (Gioia & Chittipeddi 1991; Rouleau 2005; Maitlis & Lawrence 2007; Maitlis & Christianson 2014). Generally, the process of sensegiving may be seen to include actions related to sharing, influencing, convincing, and justifying meaning to others (Gioia & Chittipeddi 1991; Smerek 2011; Maitlis & Christianson 2014; Garreau, Mouricou & Grimand 2015).

According to Gioia and Chittipeddi (1991), actors cycle between sensemaking and sensegiving. Indeed, sensemaking and sensegiving are intimately connected processes (Rouleau 2005), whose expression is uniquely influenced by personal bias, understanding, and perception (Daft & Weick 1984; Thomas, Clark & Gioia 1993; Schouten & Remme 2006; Sandberg & Tsoukas 2015). As described by Gioia and Chittipeddi (1991), and Sandberg and Tsoukas (2015), actors are not 'simply passive recipients' of sensegiving processes, but engage with the information provided to them, and, through their own processes of sensemaking, either accept or reject the proposed narrative.

Also, consider the following description of the sensemaking process by Maitlis and Christianson (2014:98): "sensemaking could be regarded as unfolding in an improbably hyper-agentive environment, where individuals...notice, and act on cues, freely share their emerging accounts with available others, and enact new, sensible environments as they do so". This act of sharing emergent interpretations with others is reflective of the process of sensegiving. Therefore, meaning is ultimately generated through iterative cycles of sensemaking and sensegiving (Maitlis & Christianson 2014).

Lastly, although it is possible to consider some aspects of sensemaking as individual, which in the literature include explorations of mental maps and frameworks (Hill & Levenhagen 1995; Kaplan 2008; Sandberg & Tsoukas 2015), many authors emphasise the intersubjective nature of sensemaking and sensegiving (Maitlis & Christianson 2014). A narrative is therefore often co-created "through discussion, debate, and the exercise of power—a difficult and emotional process but one that generates an account supported by most (but not all)" (Maitlis & Christianson 2014:83). Even when sensemaking is considered an individual process, individuals engage in sensegiving to influence the understanding of others, and, in this way, still engage in an intersubjective process of meaning-making (Maitlis & Christianson 2014).

2.5.5 Sensemaking/sensegiving in the organisational and sustainability literature

In this section, I review why a sensemaking/sensegiving perspective is well-suited to the study of organisations and sustainability related activities that are multi-faceted and associated with multiple stakeholder perspectives.

From an organisational perspective, “sensemaking and organization constitute one another” (Weick, Sutcliffe & Obstfeld 2005:410) as both ‘sensemaking’ and ‘organizing’ allude to a process of reducing chaos. Schouten and Remme (2006) also assert that an organisation can be thought of as a form of ‘collective sensemaking’. This is important considering that within a company, sensemaking/sensegiving may occur at both an individual or a broader organisational level (Thomas, Clark & Gioia 1993; Schouten & Remme 2006).

Challenges to organisational identity or image have been evidenced to trigger sensemaking processes (Maitlis & Christianson 2014). Organisational identity refers to an internal understanding of corporate character, while image relates to external perceptions of the organisation (Dutton & Dukerich 1991). A challenge to organisational identity or image may trigger individual action as these organisational characteristics are often strongly intertwined with an individual’s own sense of self (Dutton & Dukerich 1991). In an organisational setting, a challenge to identity may even affect an employee’s ability to carry out their normal tasks (Maitlis & Christianson 2014).

Scholars have also explored sensemaking/sensegiving in the context of crisis management. For example, Weick (2010) considered sensemaking during the 1984 Bhopal gas leak, and found that environmental cues were ‘missing and misleading’ and that there had been a breakdown between understanding and action. In addition, the Bhopal disaster highlighted how “people generate the environment through their actions and through their attempts to make sense of these actions” (Maitlis & Sonenshein 2010:553). For example, the decision to silence the gas alarm after five minutes hindered the evacuation of residents in the town (Weick 2010).

In relation to sustainability, sensemaking/sensegiving has been used to explore the relationship between organisational identity and sustainability pressures (Weick, Sutcliffe & Obstfeld 2005; Pater & Van Lierop 2006; Basu & Palazzo 2008). For example, Hoffman and Ocasio (2001) specifically explored the relationship between environmental crises, sensemaking/sensegiving, and organisational identity.

The authors found that the novelty and peculiarity of a crisis may attract public attention (Hoffman & Ocasio 2001). In turn, public attention, and changing public perceptions of an industry's image, may affect and reshape aspects of organisational identity and subsequently trigger organisational sensemaking and sensegiving (Hoffman & Ocasio 2001).

The implementation of sustainability initiatives may also challenge corporate identity and trigger widescale organisational changes that in turn trigger sensemaking/sensegiving. For example, Cherrier, Russell, and Fielding (2012) explored different responses to corporate sustainability and captured these as six distinct organisational identities. These identities were further categorised as either being supportive or resistant to corporate sustainability (Cherrier, Russell & Fielding 2012).

Finally, other scholars such as van der Heijden, Cramer, and Driessen (2012) have used a sensemaking/sensegiving perspective to consider the role of sustainability change agents. The authors found that initial forms of 'disconnected sensemaking', due to the use of jargon and isolating language, limited organisational engagement with sustainability (van der Heijden, Cramer & Driessen 2012). Later, change agents were able to adapt their language, and through the co-creation and sharing of meaning, facilitate meaningful engagement with sustainability throughout the company (van der Heijden, Cramer & Driessen 2012). Although the authors do not explicitly use the term 'sensegiving', the change agents' use of language and narrative to influence the sensemaking of others is distinctly associated with the process of sensegiving (Gioia & Chittipeddi 1991; Rouleau 2005; Maitlis & Lawrence 2007; Maitlis & Christianson 2014).

The discussion in this section suggests that a sensemaking/sensegiving perspective, which has been used in organisational and sustainability contexts, is an appropriate framework to explore business engagement with the SDGs.

2.5.6 Emotion and sensemaking/sensegiving

The role of emotion is an emerging theme in sensemaking/sensegiving research. Indeed, many scholars have recognised the need for increased scholarship on the role of emotion in sensemaking/sensegiving (Weick, Sutcliffe & Obstfeld 2005; Maitlis, Vogus & Lawrence 2013; Maitlis & Christianson 2014). In this study, I consider emotion as a "transient feeling state with an identified cause or target that can be expressed verbally or nonverbally" (Maitlis, Vogus & Lawrence 2013:223).

Sensemaking/sensegiving often elicits strong emotions (Weick 1995; Maitlis & Christianson 2014). For example, challenges to individual or organisational identity are often met with negative emotion and a desire to re-enact control over one's environment (Maitlis & Sonenshein 2010; Maitlis & Christianson 2014). According to Weick (1995), the relationship between emotion and sensemaking is based on the emotional arousal that 'disruption' triggers, while Rouleau and Balogun (2011) found that managers needed to exhibit emotional displays that were appropriate to their socio-cultural context for sensegiving to be successful. In addition, both emotion and sensemaking/sensegiving involve the generation and interpretation of cues from the environment (Myers 2007). Indeed, the experience of emotion as a warning of imminent danger triggers a most basic and instinctual form of sensemaking/sensegiving (Weick 1995). Emotion is also important when one considers that "[s]ensemaking is not about truth" (Weick, Sutcliffe & Obstfeld 2005:415). Rather, it is about creating a plausible and acceptable narrative; a process that is assisted by an experience that is emotionally appealing (Weick 1995; Rouleau 2005).

However, in the literature, emotion has still largely been regarded as an obstacle or as inconsequential to sensemaking/sensegiving (Weick 1995; Weick, Sutcliffe & Obstfeld 2005; Maitlis, Vogus & Lawrence 2013; Maitlis & Christianson 2014). Organisational studies have tended to focus on issues of 'language' and 'cognition', while disregarding aspects of 'perception' and 'emotion' (Weick, Sutcliffe & Obstfeld 2005).

Still, some scholars have explored the role of emotion in the sensemaking/sensegiving process. For example, Maitlis, Vogus, and Lawrence (2013) considered how emotion both stimulates and sustains sensemaking, affects the type of sensemaking that is experienced, and provides an indication of the plausibility of the meaning that is generated. Emotions have also been evidenced to influence the quality and type of group strategising and sensemaking/sensegiving. Negative emotions are seen to impede collaboration and the co-creation of meaning (Liu & Maitlis 2014), while different emotional responses within a group may lead to a divergence in meaning and action between different stakeholders (Maitlis & Sonenshein 2010).

Therefore, as expressed by Myers (2007), emotion should be considered as complementary, and at times necessary, for the processes of sensemaking and sensegiving. The role of emotion in noticing disruption, directing attention, connecting belief to action, and influencing interpretations clearly illustrates that "emotion and sensemaking [and sensegiving] are often intimately and intricately connected" (Maitlis, Vogus & Lawrence 2013:224).

2.5.7 Sensemaking/sensegiving: Language, communication, narrative, and storytelling

Beyond emotions, sensemaking and sensegiving are grounded in themes of language, communication, narrative, and storytelling (Boyce 1995; Maitlis & Sonenshein 2010; Cornelissen 2012; Sandberg & Tsoukas 2015). The ubiquity of language and storytelling in shaping and sharing our understanding of the world is captured in Watson and Bargiela-Ciappini's (1998:287) expression that:

Humans are constantly telling each other stories about the world (in fiction and non-fiction, through formal writing and informal conversation, in serious discussion, and in jokey gossip). Some people are more storytellers than listeners and some tend to listen more than to speak.

In *Sensemaking in Organizations*, Weick (1995) specifically refers to the process of sensemaking as the transformation of understanding into words. For scholars such as Gabriel (2004), sensemaking and sensegiving are indistinguishable from narrative, while Weick, Sutcliffe, and Obstfeld (2005:409) contend that institutional behaviour is created through "reading, writing, conversing, and editing", and refer to sensemaking as a process involving language and words.

Several scholars have explored the role of language and narrative in organisational sensemaking/sensegiving. For example, Fiol (2002) explored the role of language in reconceptualising aspects of organisational identity after internal and external changes challenged the existing identity of a technology company. While recognising the importance of other organisational activities, such as management behaviour and the introduction of new organisational tools, in effecting a new organisational identity, Fiol (2002:655) notes that "it is through rhetoric that leaders make a series of powerful change tools more powerful...Language gives them all specific meaning".

In their study on an organisational merger, Brown and Humphreys (2003:124) argue that "people make sense of change...as a process of narrativization". Their study highlights how different groups may develop different narratives for change.

For example, while the management team responsible for the execution of the merger created a narrative of 'epic change', the organisation's subordinates crafted a decidedly more 'tragic' narrative of victimhood (Brown & Humphreys 2003). Maitlis and Sonenshein (2010) contend that organisational change is as much a function of the narratives that become rooted within a company as those that are disregarded and neglected. For Brown and Humphreys (2003), as neither narrative - the epic or tragic tale - was dominant, the success of the merger was undermined.

The exploration of language in institutional, organisational, and management studies has entrenched the perspective that it is primarily through written and verbal language that we construct our social reality (Bell & Davison 2013; Jones et al. 2017). Indeed, the sensemaking/sensegiving and organisational literature often focuses on the role of written and verbal communication in creating and sharing meaning (Garreau, Mouricou & Grimand 2015; Jones et al. 2017; Höllerer, Jancsary & Grafström 2018).

According to Bell and Davison (2013), the 'linguistic turn' in 20th century management studies represented a shift in the perception of language as a simple conduit for information, to that of language as the foundation of 'meaning and reality'. As such, a rich body of research on sensemaking and sensegiving in the organisational context has imbued words such as 'narrative' and 'metaphor' with written or verbal meaning (Brown & Humphreys 2003; Brown, Stacey & Nandhakumar 2008; Abolafia 2010; Cornelissen 2012).

Having discussed the importance of - primarily - written and verbal communication to the organisational and sensemaking/sensegiving literature, I now turn my attention to a visual exploration.

2.6 A visual exploration

Examples of visuals include two/three-dimensional (2/3D) media such as images, graphs, maps, structures, visual media, photographs, and infographics (Bell & Davison 2013; Davison, Mclean & Warren 2015; Chapman, Corner, Webster & Markowitz 2016). In this study, I explore visuals in five categories: illustrations (pictures, cartoons, icons, and paintings), photographs, data visualisations (charts, graphs, infographics, and diagrams), moving images (videos, films, animations), and 3D media (models, sculptures, VR, and 3D displays).

In the sections below, I first discuss the underexplored, yet important, role of visuals in the organisational and sensemaking/sensegiving literature. Second, I briefly discuss the characteristics of visuals, followed by a more detailed exploration of infographics, video, and 3D media in support of my research findings. Third, I introduce boundary objects and the role of visual metaphor in sensemaking and sensegiving. Fourth I discuss the use of visuals, and visual boundary objects, in relation to sustainability. I conclude with a brief reflection on the challenges for future visual research.

2.6.1 The underexplored role of visuals

Some of the earliest forms of human written communication were pictographic (Alshenqeti 2016), and in contemporary society, visuals “permeate[] our everyday lives through photographs, film television, video and web pages” (Bell & Davison 2013:167). As argued by Höllerer, Jancsary, and Grafström (2018:621), “purely verbal discourse is both a myth and an analytical fallacy in contemporary society”. Arguably, the same is true when considering a purely textual discourse.

Considering our intimate connection with visuals, it is unsurprising that they have been explored by scholars from diverse academic disciplines, such as art history, anthropology, and ethical philosophy (Bell & Davison 2013; Meyer et al. 2013). However, although some scholars advocated for a greater consideration of the visual in organisational research as early as the 1990s (Meyer 1991), they have remained underexplored in the organisational and sensemaking/sensegiving literature (Bell & Davison 2013; Meyer et al. 2013; Höllerer, Jancsary & Grafström 2018).

Indeed, while the utility of visuals for understanding organisational and sensemaking/sensegiving processes is acknowledged in the academic literature (Meyer et al. 2013; Garreau, Mouricou & Grimand 2015; Kassinis & Panayiotou 2017), they remain poorly understood in comparison to verbal and written communication (Bell & Davison 2013; Meyer et al. 2013; Kassinis & Panayiotou 2017; Höllerer, Jancsary & Grafström 2018). Scholars have therefore continued to argue that equal attention be paid to visuals and their contribution to meaning-making, decision-making, and the generation of alternative knowledge within organisations (Cho, Michelon & Patten 2012; Bell & Davison 2013; Höllerer, Jancsary, Meyer & Vettori 2013; Meyer et al. 2013).

According to Bell and Davison (2013), visuals are relevant to the organisational and management literature due to the ubiquity of visual practices in contemporary organisational life. Jones et al. (2017) contend that symbols and visual narrative are critical to understanding how meaning is created and transferred within an organisation, that daily organisational meaning is already shared in ways other than verbal communication, and that visuals give insights into processes such as stakeholder management and strategic planning. In addition, several organisational practices rely on visual tools such as charts or PowerPoint slides (Meyer et al. 2013). This suggests that organisational research may benefit from a greater consideration of the visual (Bell & Davison 2013; Boxenbaum, Jones, Meyer & Svejnova 2018).

Scholars also contend that as visual communication differs from verbal and written communication, it provides an alternative 'way of seeing' in organisational and management research (Bell & Davison 2013). In this way, visuals may provide a "necessary counterweight to the cognitive, rationalized dimension of organizing" (Bell & Davison 2013:169). In addition, while linguistic expression is dominant in the contemporary 'Western' world, visuals have functioned as a principle form of expression in other societies (Meyer et al. 2013). Therefore, a consideration of visuals in the organisational and sensemaking/sensegiving literature may not only offer up new research areas for exploration, but also the potential for developing perspectives that differ from those that dominate in the Global North.

Vaara, Tienari, and Irmann (2007) provide an example of the consideration of visuals in organisational research. In their study, the authors used visuals to explore the creation of a new organisational identity of a financial services group following several international mergers. The authors found that the company used specific imagery, such as a photograph of a man ice-fishing, to create a distinctive Nordic identity for the organisation (Vaara, Tienari & Irmann 2007). Jones et al. (2017) support the view that visuals may play an important role in fostering a sense of identity through the use of colour or shared symbols. Indeed, Beyes (2017) offers 'snapshots' of the possible contribution of colour to the study of organisations and organising.

Considering the close connection between sensemaking/sensegiving and themes of language, communication, narrative, and storytelling as introduced in section 2.5.7, and the importance of visuals in everyday life including organisational settings, the role of visuals in sensemaking/sensegiving is remarkably underexplored.

Yet, when considering the role and influence of visuals from other literature fields, it is evident that visuals may specifically support research on sensemaking and sensegiving. Visuals, and visual artefacts, may be used to understand how we construct our social realities, how actors process information, and our development of mutual understanding (Bell & Davison 2013; Meyer et al. 2013).

For example, Garreau, Mouricou, and Grimand (2015) explored the role of visuals in strategic sensemaking/sensegiving and found that visuals support different sensemaking and sensegiving modes as well as facilitate shifts between these different modes. More recently, Höllerer, Jancsary, and Grafström (2018) considered the role of pictures as part of a multi-modal analysis of sensemaking of the global financial crisis. The study explores how visuals support different narratives of the financial crisis. For example, the 'blame game' narrative was illustrated by visuals such as lighting striking corporate headquarters or images of those deemed responsible for the crisis in a courtroom setting (Höllerer, Jancsary & Grafström 2018). The study illustrated how visuals, in conjunction with written text, supported the collective sensemaking and sensegiving of a multi-faceted, geographically dispersed event by bounding the financial crisis into eight distinctive narrative types (Höllerer, Jancsary & Grafström 2018).

These studies are some of the emerging, yet limited, explorations of visuals in sensemaking and sensegiving that support the need for, and importance of, further research of the role of visual communication. It is this gap that this study aims to explore, while drawing on the characteristics of visuals as discussed in the sections below to create new insights linking visuals and the processes of sensemaking and sensegiving.

2.6.2 The characteristics of visuals

Having introduced my visual exploration, I now briefly discuss certain characteristics of visuals and visual communication. Although not exhaustive, I highlight key aspects of relevance to my research findings.

Visuals differ from verbal communication in that they create an immediate response in the viewer, simplify information, provide a holistic rather than a linear representation of social reality, and often allow for multiple interpretations of information (Bell & Davison 2013; Meyer et al. 2013; Jones et al. 2017; Kassinis & Panayiotou 2017). Visuals appear well-suited to attracting attention and providing connections between information, and the evolution of a 'global visual language' facilitates meaning-making and sharing across various boundaries (Lurie & Mason 2007; Jones et al. 2017; Höllerer, Jancsary & Grafström 2018). Visual representations also engage aspects of experiential processing, which complements the more commonly explored rational processing of information (O'Neill, Boykoff, Niemeyer & Day 2013). Importantly, as visuals may combine 'rationality with emotion' (Bell & Davison 2013), they are considered to have 'emotional and affective' influence (Davison, Mclean & Warren 2015). Despite criticism related to how visuals may inaccurately represent information, or veil subjectivities as objective truths (Lurie & Mason 2007; Bell & Davison 2013; Jones et al. 2017), their utility appears evident.

In the following sections I provide a more detailed discussion of the characteristics and utility of three visual types: infographics, video, and 3D media. These visual types are associated with some of my key research findings presented in Chapter 4.

2.6.3 The characteristics and utility of infographics, video, and 3D media

An infographic, an abbreviation for 'information graphic', uses a combination of visuals and text to communicate information (Lankow, Ritchie & Crooks 2012; Smiciklas 2012; Otten, Cheng & Drewnowski 2015). Infographics, first popularised by newspapers and for editorial use in the early 1990s and then 'usurped' by the Internet (Lankow, Ritchie & Crooks 2012; Otten, Cheng & Drewnowski 2015), now comprise a variety of formats, but are commonly associated with illustration, large typography, and an extended vertical or horizontal orientation (Lankow, Ritchie & Crooks 2012). Infographics are visually appealing, encourage engagement with information and data (Lankow, Ritchie & Crooks 2012; Smiciklas 2012; Otten, Cheng & Drewnowski 2015), and are an effective way of simplifying information (Lankow, Ritchie & Crooks 2012). According to *The Economist* (2010:10), "[i]f a picture is worth a thousand words, an infographic is worth an awful lot of data points". In addition, through their narrative-based presentation, infographics present information as stories; one of the oldest modes of sensemaking and sensegiving (Otten, Cheng & Drewnowski 2015).

Video is another popular medium of communication. According to the 2017 *State of Online Video* survey (Limelight Networks 2017), online video viewing continues to increase, particularly for people aged 18 to 25. In addition, new media platforms, such as video, have increased access to scientific information that was previously only available via print media (Brossard 2013; Welbourne & Grant 2016). Videos are also able to generate a strong emotional response in the viewer (Guadagno, Rempala, Murphy & Okdie 2013), and considering Elder's (2017) recommendation that videos on LinkedIn should last between 30 seconds and five minutes, appear to be well-suited to deliver content in a fast-paced world. According to the International Federation of Library Associations and Institutions (2018:2), "[d]igital storytelling is the contemporary expression of this ancient art [of storytelling]. It combines the best of two worlds: the 'old world' of telling stories, and the 'new world' of digital technologies".

3D visuals include 3D animations, VR, and artwork such as sculptures. The use of 3D, and in particular VR, in corporate communication is underexplored in the literature. While acknowledging the immersive experience offered by VR, there are still concerns around the high cost of the technology (Neiger 2016). However, it is anticipated that costs will soon begin to decrease (Neiger 2016; Wiederhold 2016). There are already examples of companies using 3D video for external communication, such as the 360 degree video of the Sasol Secunda petrochemical facility available on YouTube (Sasol 2018). Companies may also use VR to showcase products to customers or to support training programs (Business.com 2018).

Many of the visual characteristics discussed thus far may support the processes of sensemaking and sensegiving. For example, the use of visuals to attract attention and provide connections between information may be useful when scanning and interpreting information. In the following section, I extend my exploration of the connection between visuals and sensemaking/sensegiving through a discussion on visual metaphors.

2.6.4 Sensemaking/sensegiving and visual metaphor

The sensemaking/sensegiving literature has emphasised the role of metaphor “that represents one thing in terms of another” (Cornelissen 2012:119). According to Gioia et al. (1994), metaphor is ‘key to understanding’ as symbolism, allegory, or metaphor provides a bridge between new experiences and previously developed understanding. Metaphors are able to provide a sense of connection as they are already imbued with a sense of familiarity and legitimacy (Cornelissen, Holt & Zundel 2011; Sandberg & Tsoukas 2015); an attribute that may be particularly useful when change is associated with ‘emotionally anxious circumstances’ (Cornelissen 2012). Although, as expressed by Hill and Levenhagen (1995), in some instances metaphors themselves may evoke emotion in their audience. Metaphors may also provide a sense of order, reduce confusion, and evoke a sense of action during the sensemaking/sensegiving process (Hill & Levenhagen 1995; Cornelissen, Holt & Zundel 2011; Cornelissen 2012).

Several scholars have explored the role of metaphor in sensemaking/sensegiving. Gioia et al. (1994) consider the role of symbols in creating influence and emphasise the role of metaphor in the sensegiving process. Weick and Sutcliffe (2003) provide an example of how metaphors may assist in justifying a particular narrative over other interpretations (Cornelissen, Holt & Zundel 2011; Cornelissen 2012) in their discussion on how staff at the Bristol Royal Infirmary framed their performance deficiencies as a metaphorical ‘learning curve’. Cornelissen, Holt, and Zundel (2011) present a detailed exploration of the role of metaphor in connecting cues to mental frameworks (sensemaking) and in legitimising and justifying decisions (sensegiving).

Although the literature has largely emphasised the role of verbal and written metaphor, visuals may also be used as a metaphor to assist in the construction of new meaning and even new realities (Kassinis & Panayiotou 2017). Visual metaphors may provide an alternative to ‘static’ language (Kassinis & Panayiotou 2017) in response to the call for deeper expression in the language of sensemaking/sensegiving (Weick, Sutcliffe & Obstfeld 2005). Höllerer, Jancsary, and Grafström (2018) also allude to the metaphorical quality of visuals by referring to their increased ‘potential for iconicity’ in comparison to other forms of communication.

Visuals and visual metaphors are specifically useful for translating novel or complicated ideas into more understandable conceptualisations (Bell & Davison 2013; O'Neill et al. 2013; Jones et al. 2017), such as commonly used in cartoons (El Refaie 2003). For example, Domínguez, Pineda, and Mateu (2014) considered the evolution of visual metaphors in cartoons illustrating migration from Africa in the Spanish media. Figure 2.4 shows the African continent as a metaphor for African immigrants headed by boat towards the European coast (Domínguez, Pineda & Mateu 2014). In the organisational literature, Kassinis and Panayiotou (2017) explored organisational change using the visual metaphor of a 'helix of change' to illustrate that change is "cyclical, continuous, dynamic and evolving" (Kassinis & Panayiotou 2017:156).

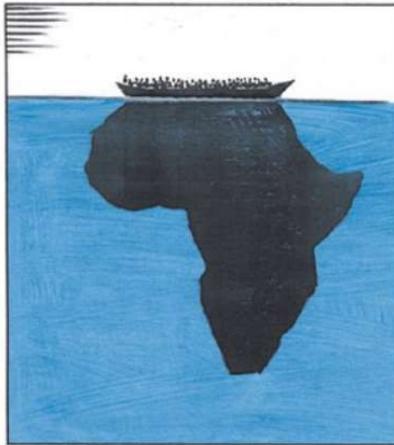


Figure 2.4: African continent as a visual metaphor for migration to Europe
Source: El Roto (2007) in Domínguez, Pineda, and Mateu (2014)

2.6.5 Visuals and boundary objects

Another link between visuals and sensemaking/sensegiving is captured by the concept of boundary objects. According to Meyer et al. (2013), visual artefacts are important for knowledge sharing and assist in the social construction of reality (Meyer et al. 2013). Visuals therefore function as a 'bridging device' (Höllerer et al. 2013), or boundary object, that connects different ideas, temporalities, tensions, and communities (Jones et al. 2017).

In 1989, Star and Griesemer explored the co-operation of different groups in ensuring the successful operation of the Museum of Vertebrate Zoology at the University of California. They described the role of boundary objects in this co-operative process as “objects which are both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites” (Star & Griesemer 1989:393). Therefore, boundary objects serve as a ‘recognisable’ object across ‘different social worlds’ (Star & Griesemer 1989).

Boundary objects may facilitate knowledge transfer, intersubjective meaning-making, and negotiation between different stakeholders across multiple boundaries (Carlile 2002; Benn, Edwards & Angus-Leppan 2013; Jones et al. 2017). These processes, related to the co-creation and sharing of meaning, are characteristic of sensemaking and sensegiving (Gioia & Chittipeddi 1991; Weick 1995; Maitlis & Christianson 2014).

It is worth noting that a boundary object may not always be visual or material. Although the term ‘object’ commonly refers to a material item, Star (2010:603) highlights that an object, defined as “something that people...act toward and with”, may include abstract entities such as academic theories. For example, Koskinen (2005) explored the role of metaphoric boundary objects, such as the notion of a ‘product idea’, in facilitating knowledge transfer and innovation between different departments in an organisation. The ‘product idea’ acted as a metaphor to hold new ideas and information that could easily be exchanged between different groups during the innovation process without the use of discipline specific jargon (Koskinen 2005).

However, Jones et al. (2017) contend that our world is primarily visual and material, and that ‘materiality’ and ‘visuality’ not only form the basis for our own experiences of the world, but also for communicating and sharing ideas, opinions, and beliefs. Visuals and material objects therefore provide a useful frame for understanding, and literally ‘making visible’, organisations and organisational activities (Höllerer et al. 2013; Jones et al. 2017; Boxenbaum et al. 2018).

In their 2013 study, Höllerer et al. examined visuals related to CSR in company reports and explored how these visuals, such as photographs of local communities or local historical icons, served as bridging devices that translated a global concept into a local conceptualisation of CSR. In 2015, Garreau, Mouricou, and Grimand, explored the use of visual representations in strategic sensemaking/sensegiving.

The authors found that visual and material boundary objects, such as maps and 3D models of proposed developments as shown in Figure 2.5, were critical to the processes of meaning-making and meaning-sharing between different stakeholders involved in a shopping centre development project (Garreau, Mouricou & Grimand 2015). For example, meeting attendees used maps to guide their brainstorming on how to best extend the physical and operational footprint of an existing shopping centre (Garreau, Mouricou & Grimand 2015).

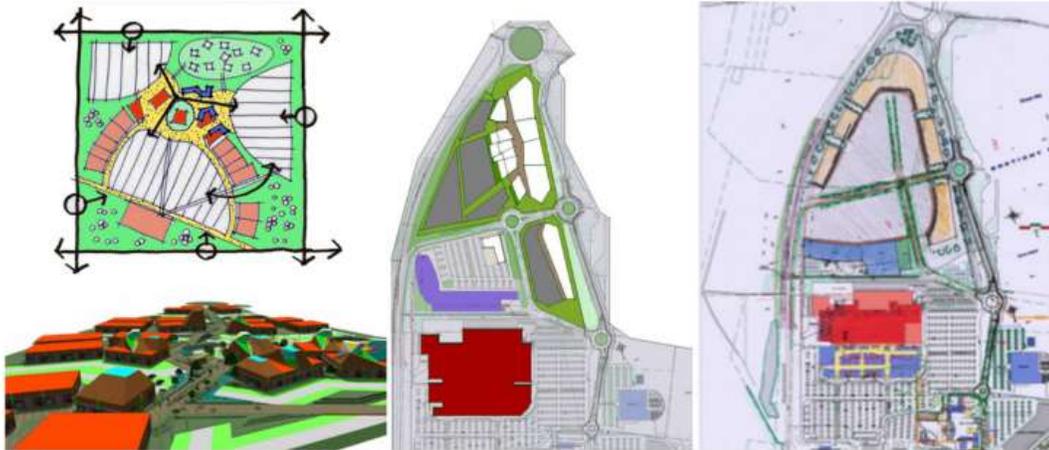


Figure 2.5: Maps and a 3D model as visual boundary objects used to facilitate meaning-making and meaning-sharing between different stakeholders
Source: Garreau, Mouricou, and Grimand (2015)

2.6.6 Visuals and sustainability

Having broadly discussed the study of visuals in the organisational literature, in this section I explore the use of visuals in relation to sustainability themes. From a sustainability perspective, the media, NGOs, and activists often use visuals when reporting on climate change or other sustainability crises (O'Neill et al. 2013; Chapman et al. 2016; Jones et al. 2017).

A main argument advanced to support the use of visuals is that they heighten our emotional response to sustainability challenges (O'Neill et al. 2013). For example, Figure 2.6 shows a series of photographs, taken by photographer GMB Akash and published by the Hindustan Times in India. The arguably highly emotional photographs, showing displaced people and their struggle to locate food and water, illustrate the social consequences of climate change in Bangladesh as rising sea levels lead to increasing numbers of climate-change refugees (Akash 2018).



Figure 2.6: Photographic series of climate refugees in Bangladesh published by the Hindustan Times
Source: Adapted from Akash (2018)

Reilly and Hynan (2014) explored corporate communication on sustainability topics via social media, and suggested that image and video-based communication would become increasingly popular on these platforms in comparison to text-based information.

VR has also been co-opted in support of sustainability initiatives such as the *VR for Impact* programme that supports 3D and VR projects that further the objectives of the SDGs (Vive 2017). Similarly, sculptures and 3D artworks have been used to communicate on sustainability issues, such as Investec's (2017) e-waste campaign that included sculptures to raise awareness around e-waste.

In the literature, visual boundary objects have also been studied in relation to sustainability topics (Benn, Edwards & Angus-Leppan 2013). For example, Benn, Edwards, and Angus-Leppan (2013) explored the use of boundary objects in organisational learning for sustainability and found them to be valuable for establishing and facilitating communities of practice.

2.6.7 The challenge of future visual research

Despite the promising studies discussed, challenges remain for future visual research. First, there are challenges related to the definition of the visual (Emmison & Smith 2000). If visuals are understood to include all that is observable, “the list of possibilities is enormous, perhaps endless” (Emmison & Smith 2000:4). For example, visuals may represent an external or internal expression (such as dreams), may refer to a phenomenon or approach to a study, and are often found in combination with other forms of communication such as text or even music (Bell & Davison 2013).

The dominance of written communication in academic journals is an additional challenge for further research on visuals (Bell & Davison 2013; Meyer et al. 2013; Boxenbaum et al. 2018). Bell and Davison (2013) suggest that visuals are still considered to lack scientific rigour, and although some visual types, such as charts and graphs, are well-established in the organisational literature (Bell & Davison 2013), Emmison and Smith (2000) refer to a perception of visual sub-disciplines as an ‘eccentric specialism’.

It is also worth noting the paradox (Meyer et al. 2013; Kassinis & Panayiotou 2017) of using words to promote the further exploration of visuals in organisational and sensemaking/sensegiving research. My text-based presentation of this research is a clear demonstration of this paradox, and a challenge with which I grappled, and maintained an uncomfortable co-existence with, throughout my research.

2.7 Chapter summary

In this chapter, I discussed the concept of corporate sustainability, explored business engagement with the SDGs, introduced the theoretical constructs of sensemaking/sensegiving and explored the characteristics, role, and utility of visuals.

Building on the work of scholars such as Garreau, Mouricou, and Grimand (2015) and Höllerer, Jancsary, and Grafström (2018), I aim to contribute to the emerging exploration of the characteristics and role of visuals within a sensemaking/sensegiving framework. Considering that recent academic research highlights a positive relationship between visuals and sustainability, practical examples of the use of visuals in relation to sustainability themes, and the visual iconography of the SDGs, I situate my visual study in an exploration of business engagement with the SDGs.

Chapter 3 - Research design

3.1 Introduction

The aim of this chapter is to provide a detailed discussion of the research process as a way of contextualising and justifying my approach to the study. According to Creswell (2014:5), a research approach “involves the intersection of philosophy, research designs, and specific methods”. Therefore, although I present the aspects of my research approach linearly, it is important to consider these as parts of an “integrated and interacting whole” (Maxwell 2013:216).

The chapter begins with a description of my research paradigm. I then discuss my mixed-methods research approach before detailing my research methodology, methods, and data analysis techniques. I conclude the chapter with a reflection on the research validity.

3.2 Research paradigm

A research paradigm, or worldview, refers to “a set of very general philosophical assumptions about the nature of the world (ontology) and how we can understand it (epistemology)” (Maxwell 2013:224). A researcher’s worldview will therefore influence the research approach and all the stages of the research process (Maxwell 2013; Bryman, Bell, Hirschsohn, dos Santos, du Toit, Masenge, van Aardt & Wagner 2014; Creswell 2014).

My study was informed by a constructivist research paradigm. Constructivism, which is often associated with an interpretivist epistemological orientation (Creswell 2007; Bryman et al. 2014), considers “social reality [as] a joint product” (Yin 2011:308) that is created by both the external situation and the experiences and perceptions of the person involved in the situation (Bryman et al. 2014). In this worldview, social actors are considered to continuously create, re-create, and interpret social phenomena in different ways (Guba & Lincoln 1994; Bryant & Charmaz 2007; Eisenhardt, Graebner & Sonenshein 2016). From a constructivist perspective, an organisation is viewed as being socially constructed by the perceptions, experiences, actions, and interactions of social actors (Bryman et al. 2014). Therefore, the findings from my interviews, survey, and company reports may collectively constitute one - but not the only - voice of the company.

A constructivist-interpretivist perspective has also recently been advanced in the sensemaking literature (Maitlis & Christianson 2014). For example, Sandberg and Tsoukas (2015) reflect that recent studies on sensemaking/sensegiving have focused on the role of language and the social construction of meaning in contrast to an emphasis on individual cognition. This supports the appropriateness of a constructivist paradigm in seeking to understand the phenomena explored in my research.

In addition, research from within a constructivist paradigm emphasises the interpretations and perspectives of research participants, and recognises the role of the researcher in the study (Creswell 2014; Eisenhardt, Graebner & Sonenshein 2016). In this study, I drew on participants' interpretations to develop insights related to visuals and sensemaking/sensegiving, and through journaling, I was able to reflect on my own role in the research throughout the research process.

A constructivist research paradigm is aligned with a qualitative research approach that often attempts "to improve understanding of human behaviour and experiences" (van der Merwe 1996:283). In addition, in a qualitative research approach, the relationship between theory and data is often inductive (Maxwell 2013; Bryman et al. 2014). Within a constructivist research paradigm, a researcher often employs an inductive approach to the generation of theory from data (Creswell 2014). However, while a constructivist paradigm is often associated with qualitative research methods (Bryman et al. 2014; Creswell 2014), as in my study, quantitative research methods may also be used (Guba & Lincoln 1994; Bryman et al. 2014). I discuss my mixed-methods research approach further in section 3.3.

Lastly, a constructivist research paradigm reflects my own understanding of social phenomena. Although I am trained as an engineer, where problems often require a mathematical or technical solution, I consider the importance of the problem, and the associated urgency for a solution, to be emergent and socially constructed.

3.3 Research approach

I adopted a mixed methods approach, which combines qualitative and quantitative research methods, to my study (Yin 2011; Bryman et al. 2014; Creswell 2014). As expressed by Miles, Huberman, and Saldana (2014a:43) the combination of quantitative and qualitative data can create a 'powerful mix' for "understanding...complex real-world contexts".

A mixed-methods approach improved my access to research participants (Bryman et al. 2014) and allowed me to develop a broader understanding of my study context and the emergent research findings (Creswell 2014; Miles, Huberman & Saldana 2014a). Therefore, although Bryman et al. (2014) caution against the assumption that a mixed methods approach is always appropriate for a research study, it was well-suited for supporting the aims of my research.

Although my research makes use of both quantitative and qualitative methods, it tends towards the qualitative side of the research continuum (Creswell 2014). These characteristics are reflected in the underlying constructivist research paradigm, my inductive research process, and the way in which theory was generated from empirical data (Yin 2011; Bryman et al. 2014).

According to Creswell (2014), qualitative research methods are well-suited for exploratory research. Qualitative methods are also useful for understanding the socially constructed generation of meaning (Guba & Lincoln 1994; Suddaby 2006) and organisational phenomena and processes (Gioia, Corley & Hamilton 2012; Bryman et al. 2014). These characteristics are well-suited to my exploration of organisational sensemaking/sensegiving of the SDGs.

I supported my qualitative exploration of the research objectives with quantitative research methods. The quantitative data I primarily collected from the survey provided a valuable overview of the uptake of the SDGs and the current use of visuals by companies in South Africa in relation to the SDGs.

3.4 Research methodology

In a grounded theory methodology, theory is inductively derived from the data that is generated during the research process (Glaser & Strauss 1967). In line with my underlying research paradigm, I used Charmaz's (2011) constructivist approach to grounded theory as my overall research methodology. A constructivist approach to grounded theory emphasises the social construction of phenomena, accepts that the research process is influenced by the actions and interactions of the researcher, and encourages the researcher to reflect on the views and implicit meanings conveyed by the research participants (Charmaz 2011; Gioia, Corley & Hamilton 2012).

A grounded theory methodology supports my research in three ways. First, grounded theory has often been used in exploring multi-faceted organisational challenges (Martin & Turner 1986:141). Secondly, a grounded theory approach offers alternative ways of exploring established concepts in research (Charmaz 2011). This aligns with my research objective to consider the underexplored role of visuals in the sensemaking/sensegiving process. Garreau, Mouricou, and Grimand (2015) specifically used grounded theory in their exploration of the use of visuals in processes of strategic organisational sensemaking/sensegiving. Lastly, Graebner and Sonenshein (2016) advocate for the use of an inductive approach, such as grounded theory, when exploring 'grand challenges' with far-reaching consequences and unclear solutions, such as business engagement with the SDGs.

3.5 Research methods and process

The research methods and process, as an integrated part of the research design, aimed to meet my research objectives:

1. to establish the current engagement of companies with the SDGs, focusing particularly on the motivations, contributions, and challenges of such engagement;
2. to identify what visuals companies in South Africa are using in understanding and communicating on the SDGs;
3. to explore how sustainability practitioners in companies in South Africa are using visuals to contribute to the sensemaking and sensegiving of the SDGs.

The company is the unit of analysis for research objectives 1 and 2. These findings then provide context for research objective 3 that is focused on the sensemaking and sensegiving of sustainability practitioners.

The research process that was best suited to meeting these objectives developed organically as I considered the practical actions that would be required to obtain the necessary data for my research. Although the overall research process was iterative and non-linear in its execution, it is possible to identify key steps in the research process as shown in Figure 3.1 below. While iteration is possible between any of the steps in the research process, dashed lines show significant feedback loops that I experienced. In the following sections, I describe the research steps indicated in Figure 3.1, and, where relevant, details of the associated research methods.

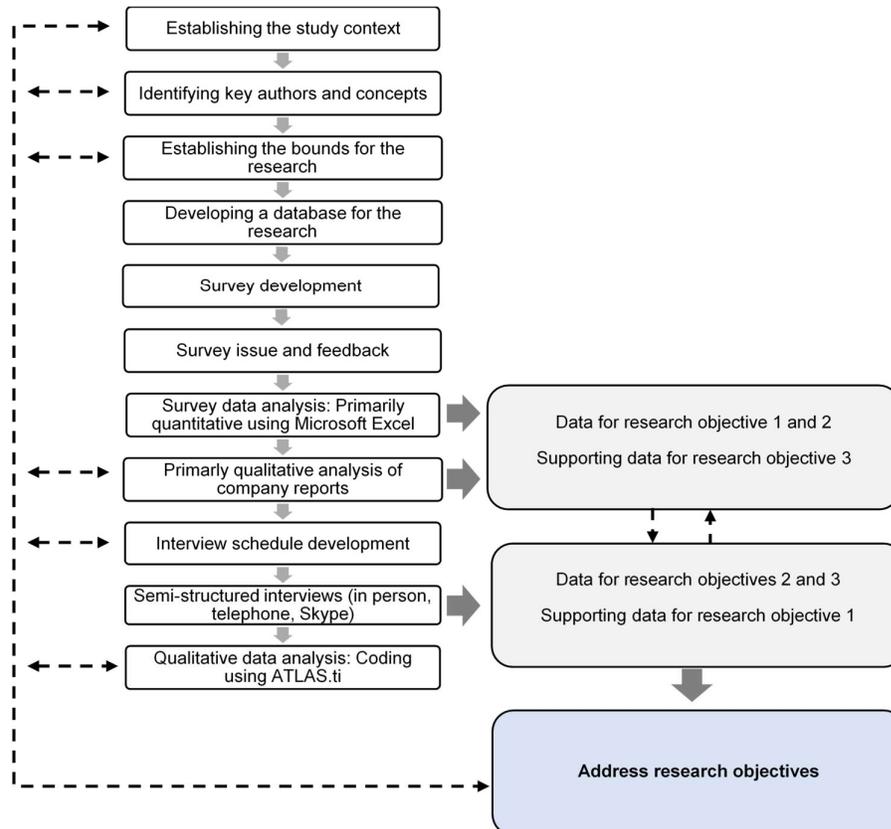


Figure 3.1: Overall research process indicating key process steps, outcomes, and iteration loops
Source: Author

3.5.1 Establishing the study context

To establish the background and relevance of the study as presented in Chapter 1, I conducted a literature review of academic and grey literature. A literature review allows a researcher to “explore the field [of the] ... research and gain a thorough awareness and understanding of current work and perspectives in the area” (Ridley 2012:1).

I used key words including ‘Anthropocene’, ‘business’, ‘organisation’, ‘corporate sustainability’, ‘Sustainable Development Goals’, and ‘South Africa’ in a search of scholarly articles on Google Scholar, research databases such as EBSCOhost, and the Stellenbosch University online library platform. I used a snowballing technique, where initial contacts or reports are used to establish links with other sources of information (Bryman et al. 2014), to expand the literature review based on the references cited by the various publications. The results from these searches suggested that while corporate sustainability is an established field of research, the relationship between business and the SDGs is underexplored in the academic literature.

I then extended my literature search to include South African postgraduate research reports, practitioner articles, newspaper reports, and reports issued by industry bodies and think-tanks. With reference to current and completed South African postgraduate research, the search string yielded no relevant results on the Nexus database of the National Research Foundation and the Africa-wide NiPAD.

When reviewing grey literature sources, I considered issues of credibility, representativeness, and meaning (Bryman et al. 2014). I have attempted to mitigate potential bias and limitations associated with the use of grey literature by including information from a variety of sources (Maxwell 2013) and, wherever possible, by including reports that have been published by independent institutions (Bryman et al. 2014).

I also conducted informal, exploratory discussions to improve my understanding of the relationship between business and the SDGs from a local perspective. Such an exploration of local perspectives is a key characteristic of a grounded theory approach (Marshall Egan 2002). I held a discussion with the South African Sustainable Development Knowledge Hub hosted at the University of Pretoria to explore local perspectives, activities, and research on the SDGs. I also met with practitioners currently researching or working with the SDGs in a corporate environment. These exploratory discussions allowed me to identify emerging themes in the field of study without being confined by existing academic discourse.

3.5.2 Identifying key theoretical concepts and authors

As discussed in section 3.4, I used a grounded theory methodology for the study. In grounded theory, researchers are encouraged to set aside existing theories and concepts related to the phenomena under investigation (Marshall Egan 2002). Instead, theory should “emerge[] from a thorough analysis of contextual data” (Marshall Egan 2002:278).

As such, at the start of the study, I conducted a limited literature review related to the concepts of sensemaking, sensegiving, boundary objects, and the characteristics of visuals. The literature review then became progressively more extensive as the research progressed and I compared the emerging data with existing theoretical constructs (Charmaz 2011). In conducting the literature review, I used search terms such as ‘visual’, ‘image’, ‘graphic’, ‘picture’, ‘sensemaking’, ‘sensegiving’, ‘corporate’, ‘organis*’, ‘boundary object’, ‘sustainab*’, ‘Sustainable Development Goals’, and ‘South Africa’. I conducted the searches on Google Scholar, EBSCOhost, and the Stellenbosch University online library platform.

Specific searches on the Nexus and NiPAD databases yielded two results of some relevance to my research. Yet, while van der Rede (2007) and Anastasiadis (2012) both investigated organisational sensemaking in a South African context, their studies did not consider visuals or the SDGs.

My multi-level approach to the literature review - discussed in sections 3.5.1 and 3.5.2 - facilitated the practical execution of my research while still allowing me to remain true to a grounded theory methodology. For Charmaz (2011:373), a grounded theorist need not ignore existing theory or knowledge, but rather “subject[] all possible theoretical explanations of a phenomenon to rigorous scrutiny - whether from the literature or their own analysis”. This position of ‘theoretical agnosticism’ (Henwood & Pidgeon 2003) is particularly suited to a constructivist approach to grounded theory (Thornberg 2012). However, even Glaser and Strauss (1967), in their original positivist framing of grounded theory (Charmaz 2011), acknowledged that a researcher’s ‘theoretical sensitivity’ is supported by an understanding of existing theory.

3.5.3 Establishing the bounds for my research

The SDGs were adopted in 2015 and research into the engagement of companies in South Africa with the SDGs is limited.

In 2015, PwC (PwC 2016b) conducted a survey on business engagement with the SDGs in South Africa as part of a global study. The survey was promoted through networks such as the UNGC (PwC 2016b). According to the UNGC (UNGC 2018), 22 of the 30 active South African companies that are signatories to the UNGC, as at June 2018, are listed on the JSE. This suggests that the PwC survey sample likely included publicly traded, for-profit companies.

Malan (2016) analysed the number of references to the SDGs by active South African signatories to the UNGC. Of the 32 companies that were active in 2016, 25 were for-profit companies listed on the JSE.

Therefore, aligning my research with these studies, I chose to focus my research on for-profit companies that were listed on the JSE during the research process. My final research sample included the 82 largest listed companies on the JSE, according to market capitalisation, as listed in December 2017 and March 2018. Section 3.5.4 explores the development of this sample in more detail.

There were additional advantages associated with my choice of research sample. First, these companies cover a variety of sectors, including resources, basic and general industries, consumer goods, and utility and financial services (JSE 2018a). This allowed me to access a breadth of views on business engagement with visuals and the SDGs. Secondly, these companies tend to have websites that facilitate access to information such as contact details and company sustainability activities. Lastly, as a JSE listing requirement, companies are directed to “implement the King Code through the application of the King Code disclosure and application regime” (JSE 2018b). Although the publication of an integrated report is itself not a listing requirement, the King IV Report on Corporate Governance in South Africa (King IV) specifies that companies should issue an annual integrated report that references the ‘six capitals’ used in value creation (King Committee 2016). The six capitals include human, social, relationship, and natural capitals (King Committee 2016), and are aligned with sustainability themes. Based on the ‘apply and explain’ principle of King IV, several listed companies issue reports that provide detailed and publicly accessible data on their approach to sustainability.

It is notable that “value creation that is accomplished in a sustainable manner” (King Committee 2016) is a key tenet of the King IV report. It further states that this idea is also captured in the SDGs and South Africa’s NDP (King Committee 2016). As such, corporate governance in South Africa, which is applicable to companies listed on the JSE, is aligned to the same principles as those embodied in the SDGs.

The research sample also suited my own context, interests, and experiences based on my exposure to corporate sustainability in a large, for-profit company. I have previously discussed limitations and assumptions related to the choice of research sample in section 1.6.

In the next section, I discuss the development of a database for my research sample consisting of the top companies by market capitalisation as provided by Sharenet (Sharenet 2018).

3.5.4 Developing a database of company contacts

Sharenet provides investment and market information related to the JSE and other South African markets (Sharenet 2018). Via the Sharenet website (2018), I accessed the Sharenet ranking of the top 100 companies, by market share, as listed on the JSE on 22 December 2017 and on 5 March 2018. I accessed the list twice to determine if there were any significant changes in the top 100 over a relatively short period of time. When comparing the two lists, 98 companies were present on both lists, although there was some movement in their relative positions. I included the companies that were only present on one of the rankings in my research sample, and therefore, initially counted 102 companies as potential respondents for my research study.

As a means of potentially increasing the participation rate in the research, I cross-checked the list of 102 companies against the Financial Times Stock Exchange (FTSE)/JSE Responsible Investment (RI) Top 30 Index, as at 18 December 2017, with the aim of including companies considered to be sustainability leaders in my research sample. The FTSE/JSE RI Index is an equally weighted index that lists the top-rated companies, as listed on the JSE, according to environmental, social, and governance (ESG) considerations (London Stock Exchange Group 2018).

Within these three pillars, the index contains over 300 indicators linked to 14 ESG themes. The themes include aspects such as climate change, water use, labour standards, and anti-corruption (London Stock Exchange Group 2018). Importantly, the 17 SDGs are all reflected within the Index themes (London Stock Exchange Group 2018). To improve my understanding of the RI Index, I conducted an informal discussion on the development of the Index with the Group Strategy and Sustainability Senior Manager of the JSE. I identified two additional companies through my review of the RI Top 30 Index. This increased the total number of potential respondents for my research to 104 companies.

I then developed and applied a set of exclusion criteria to the list of 104 companies. Table 3.1 shows the application of the exclusion criteria. In total, I excluded 20 of the 104 companies based on these criteria, with 84 companies remaining in the research sample. During preliminary communications, an additional two companies declined to participate in the research. Therefore, the final research sample consisted of 82 companies. I compiled information for these companies into a database as shown in Table 3.2.

Table 3.1: Number of companies excluded from research sample per exclusion criteria

Exclusion criteria	Criteria definition	Companies excluded
South African presence	The company has no or limited operations in South Africa.	13
Unavailability of contact information	Contact details for the South African operations could not be obtained from company websites or from international contact numbers.	1
Listing does not represent a company	The listing as reflected represents a share offering, a share bundle, a trading platform, or any other entity, but is not a discrete company with a recognisable management structure and/or headquarters and contact information.	4
Second listing	A second listing for the same company based on different financial, geographical, or other boundaries, but with the same primary managerial and reporting structure as the first listing. This exclusion does not apply to listed subsidiaries that produce their own reports and have independent contact information.	2
Total companies excluded based on exclusion criteria:		20
Decline to participate	Companies that declined to participate in the research during initial communication.	2
Companies remaining in final research sample:		82

Table 3.2: Key information included in research sample database

Category number	Category name	Description
1	Name	Company name
2	Country	Country headquartered
3	Website	Company website address
4	Company contact	Head office location and contact details
5	Survey contact	Details for survey contact including name, designation, and contact information
6	FTSE/JSE RI Index	Inclusion on the FTSE/JSE RI Index (Yes/No)
7	SDG reference	Reference to SDGs on company website or reports (Yes/No)

I used several sources in identifying a company contact. Where possible, I obtained the name of a sustainability contact directly from the company website or company reports such as the Sustainable Development Report, the Integrated Report, or other sustainability related reports such as company submissions to the CDP. I obtained information from reports dated between 2015 and 2017, and I therefore considered the information to be current. Where possible, I cross-checked this information with additional internet searches and by reviewing several different reports per company. Cross-checks only highlighted one instance of out-dated information. I also made use of my own networks to identify suitable company contacts or to verify the information that I had obtained from company websites or reports.

For companies where I was unable to identify a specific contact through the company website and reports, or through my own networks, I collected generic company email addresses. These email addresses included specific mailboxes for investor relations, communications, sustainability queries, or the company secretary. I also sourced telephone numbers for the company head office and any contact details for the sustainability or similar departments if these were available. I then contacted these companies via email, by telephone, or a combination of these, to obtain individual contact information. In general, email-based enquiries were met with a poor response, and it was necessary for me to contact the majority of companies by telephone. I prioritised the contact information for companies that had referenced the SDGs in any company material or who were listed on the Top 30 of the FTSE/JSE RI Index.

The outcomes from my enquiries can be broadly grouped into four categories:

Category 1 (n=48): I was directed to or provided with information for a company contact that was directly involved with company sustainability issues. These contacts included sustainability executives, sustainability managers, or ESG analysts.

Category 2 (n=13): I was directed to or provided with information for a company contact in a function other than sustainability. This included functions such as communications, legal, or investor relations. This was often the case for companies where sustainability activities are dispersed throughout the organisation and not managed from within a single function.

Category 3 (n=13): I was directed to or provided the contact information for the company secretary or communications liaison and asked to direct the survey via this contact for further distribution within the organisation.

Category 4 (n=8): I was directed to issue the survey via a generic company email address from where it would be further distributed within the company.

Although I followed a methodical process, it remains a limitation of the study that I may not have identified the most suitable contact to complete the survey. This may have resulted in survey non-responses, or that the survey responses do not represent the best available knowledge related to the use of visuals and the SDGs in the company.

It is worth noting that in some instances I was able to have brief, informal discussions with company representatives. These discussions resulted in some modifications to the development of my survey questions to better reflect issues related to visuals and the SDGs as raised by the company representatives themselves. This process improved the meaningfulness of the questions included in the survey and is expected to have improved the survey response rate. In the following section I discuss the objectives and development of the survey in greater detail.

3.5.5 Developing and administering the survey

I considered access and the time required from research participants as a limitation for this study. I therefore used a survey to facilitate access to a broad group of companies while reducing the initial time commitment required from the research participants. In particular, I used a self-administered electronic survey as these surveys are quick to administer, allow access to a larger sample, and are generally considered more convenient for respondents (Williams 2003; Bryman et al. 2014).

According to Fink (2003:1), “[a] survey is a system for collecting information from or about people to describe, compare, or explain their knowledge, attitudes, and behaviour”. Figure 3.2 indicates the survey development process.

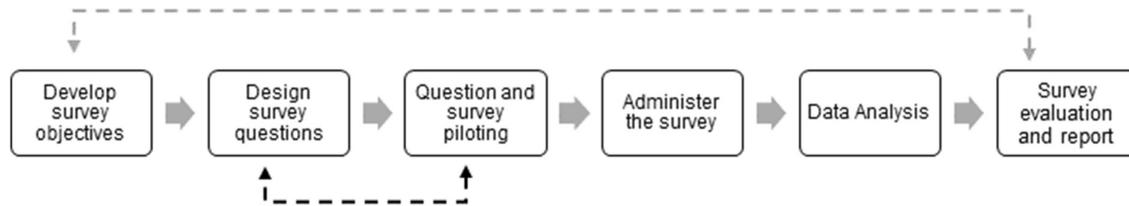


Figure 3.2: Survey development process
Source: Adapted from Fink (2003) and Giesen et al. (2012)

In Figure 3.2, a black dashed line indicates iteration between the design and piloting of the survey. Additional iteration, indicated by a grey dashed line, is possible between the evaluation of a survey and the development or modification of future surveys (Giesen, Meertens, Vis-Visschers & Beukenhorst 2012). However, as I only issued the survey once during my research process, I did not complete this step.

Developing a survey requires “striking a difficult balance between multiple interests” (Giesen et al. 2012:16). For my survey design, I considered what information I needed to answer my research questions and what was feasible to ask within the time constraints of the study. I therefore attempted to design questions that would provide me with sufficient information to meet my research objectives and that could still be answered quickly and easily by the survey respondents. The survey questions are available in Appendix A.

Survey objectives refer to the intended outcomes that a researcher aims to achieve from a survey (Fink 2003). My survey objectives were to:

1. identify suitable companies for further engagement on the research;
2. meet research objective 1 that aimed to establish the engagement of companies in South Africa with the SDGs;
3. support research objective 2 that aimed to identify how companies in South Africa are using visuals in relation to their engagement with and communication on the SDGs;
4. assist in identifying relevant themes in support of research objective 3 that explored how visuals may contribute to sensemaking and sensegiving.

I developed ‘purposeful’ questions (Fink 2003), where the relationship between the question and the survey objective are clearly identifiable, in support of each of the survey objectives.

In developing the survey questions, I researched existing surveys that were related to the SDGs and business engagement. According to Bryman et al. (2014:210), “employing existing questions allows you to use questions that have in a sense been piloted”. Therefore, by modifying response options from existing surveys, I was able to improve the validity of the question and the reliability of the respondents’ answers (Bryman et al. 2014).

To identify how companies in South Africa are using visuals in their engagement with the SDGs, it was necessary to define ‘business engagement’ within the context of my study. I developed a framework, indicated in Figure 3.3, to describe a generalised process of business engagement with the SDGs. The framework is based on two informal discussions with corporate sustainability professionals and two process frameworks that aim to assist businesses in embedding the SDGs in corporate strategy. The first framework, *The SDG Compass*, was issued by the GRI, UNGC, and the WBCSD (2015:5) “to guide companies on how they can align their strategies as well as measure and manage their contribution to the SDGs”. The second framework is based on a tool developed by PwC (PwC 2016b), the *Business Navigator*, that assists businesses in identifying and evaluating the risks and opportunities offered by the SDGs.



Figure 3.3: Generalised framework for business engagement with the SDGs
Source: Author

This inductively derived framework, underpinned by processes of internal and external communication, comprises activities related to assessing, prioritising, setting goals, and tracking progress on the SDGs.

The language used to describe each step is action-based. This decision was based on feedback from the survey piloting where respondents indicated that action-based language is less ambiguous in its meaning. Minimising ambiguity was an important consideration as a disadvantage of self-completion surveys is the absence of the researcher to prompt or explain questions to respondents (Bryman et al. 2014).

My generalised framework for business engagement with the SDGs was then applied to five visual categories that were developed from a review of the literature (Bell & Davison 2013; Davison, Mclean & Warren 2015; Chapman et al. 2016) in a series of related questions that aimed to simplify the survey process for the respondent (Giesen et al. 2012). The visual categories were: illustrations (pictures, cartoons, icons, and paintings), photographs, data visualisations (charts, graphs, infographics, and diagrams), moving images (videos, films, animations), and 3D media (models, sculptures, VR, and 3D displays).

While the use of a framework may have guided participants' thinking on the role of visuals, it does not negate the inductive nature of the research process. The language of the framework provides categories for how visuals may be used in relation to the SDGs, but does not ascribe 'meaning' or 'understanding' (Charmaz 2011) to the role of visuals. I later explored these aspects more fully through semi-structured interviews.

I used informal and technical piloting (Giesen et al. 2012) to test the clarity of the survey questions, the logical sequencing of survey questions, the time taken to complete the survey, and the survey software (Giesen et al. 2012; Bryman et al. 2014). Three senior researchers reviewed draft versions of the survey for validity. According to Fink (2003:47), "[a] valid survey instrument serves the purpose it is intended to serve". For my survey to be valid, it needed to meet the four objectives previously described.

After these validity reviews, and subsequent survey re-design, the survey was trialled with 10 individuals including a senior researcher, a sustainability academic, three professionals who are involved with aspects of corporate sustainability, and an academic from the Centre of Statistical Consultation at the University of Stellenbosch. Key changes to the survey based on this review process included an update to include action-based language, modifications to question phrasing to reduce ambiguity, and the inclusion of the framework visual shown in Figure 3.3. Reviewers were also asked to comment on the length and tone of the survey to improve its reception and ease of completion. The modified survey, which was now deemed valid, was subjected to an electronic pilot and reviewed by four individuals including an academic from the Centre of Statistical Consultation. The electronic pilot was used to highlight any technical concerns such as sequencing or routing errors in the software (Giesen et al. 2012).

By piloting the survey I aimed to mitigate some of the risks associated with a self-administered survey such as participants misunderstanding the survey questions. (Bryman et al. 2014). By following the survey with a semi-structured interview, concerns such as the inability to probe answers, ask complex questions, or engage in detailed discussion on the research topic (Bryman et al. 2014) were further mitigated, although not all the survey respondents participated in further interviews.

The survey was developed on the Stellenbosch University web-based e-Survey service SUNsurveys. My decision to use SUNsurveys related to the university support offered for the software and the additional credibility afforded to the survey by issuing it via a university-affiliated platform. In addition, during the draft survey piloting, some reviewers highlighted that their organisations blocked surveys distributed by freely-available survey software. The survey opened on 11 April 2018, with reminders issued on 18 April 2018 and 2 May 2018. The survey closed on 18 May 2018 with a 41 percent response rate (34 out of 82 companies), including two companies that declined to participate in the research.

3.5.6 Developing and conducting interviews

I used a purposive sampling approach to identify participants for interviews. Purposive sampling is a strategic approach used to select research participants (Maxwell 2013; Bryman et al. 2014) based on the potential “richness and relevance of [their] information” (Yin 2011:311) to the study’s research questions. I was interested in identifying participants whose companies had engaged with the SDGs to some extent and that were able to offer their perspectives on the role of visuals in relation to sustainability topics and the SDGs. The survey also included a question asking the survey respondents if they would be willing to participate in an interview on behalf of their company. In total, I conducted 18 interviews with sustainability practitioners from 17 different companies.

All the interviews were conducted with the same person who had completed the online survey. I conducted the interviews via telephone or Skype, or, wherever possible, in person. In-person interviews generally took place at the interviewee’s workplace, although two interviews were at coffee shops for the convenience of the interviewee. The interviews lasted between 30 and 90 minutes. All the interviews, except for one, were recorded and transcribed.

Where the respondent did not grant permission to record, I made detailed notes during the interview. All the interviewees gave their informed consent to participate in the research. Table 3.3 shows the respondent ID, type of interview, and generalised position in their company.

Table 3.3: Details of interviewees

Respondent ID	Interview	Position
Respondent C1	In-person	Sustainability Manager
Respondent C2.1	In-person	Vice President: Sustainability
Respondent C2.2	Telephone	Sustainability Specialist
Respondent C3	Telephone	Sustainability Analyst
Respondent C4	Telephone	Head: Sustainability
Respondent C5	Telephone	Sustainability Manager
Respondent C6	Telephone	Company Secretary
Respondent C7	In-person	Sustainability Officer
Respondent C8	In-person	Corporate Responsibility Manager
Respondent C9	In-person	Sustainability Manager
Respondent C10	In-person	Sustainability Manager
Respondent C11	In-person	Stakeholder Engagement Manager
Respondent C12	In-person	Investor Relations Manager
Respondent C13	Skype/Google Hangouts	ESG Analyst
Respondent C14	In-person	Vice President: Sustainability
Respondent C15	In-person	Sustainability Manager
Respondent C16	In-person	Company Secretary
Respondent C17	Skype	Sustainability Specialist

The interviews were semi-structured. In a semi-structured interview, the researcher develops an interview guide, available in Appendix B, but may change the wording or order of pre-determined questions, or introduce new questions, based on the interviewee's responses (Bryman et al. 2014). The flexible approach of a semi-structured interview encouraged a 'rich' and 'detailed' exploration (Bryman et al. 2014) of the company's engagement with the SDGs and how visuals may support processes of understanding, meaning-making, and communicating. I prepared for the interviews by reviewing company reports and responses to the electronic survey.

I based my interview technique on Weiss's (1994) recommendations on how to establish a relationship with the interviewee, guide the interview, and develop the interviewee's narrative. As suggested by Miles, Huberman, and Saldana (2014b), I developed a data accounting log to track the interviews by recording details such as the interview date, duration, and location.

I also developed a summary as soon as possible after the interview, either as a voice note or an electronic journal entry, reflecting on the tone, mood, and any particularly memorable insights from the interview. I used these summaries to identify any emerging themes that I had not already captured in the interview guide and to update my interview questions.

Finally, although the number of interviews were constrained by the availability of research participants, there were sufficient interviews to gain rich insights into the study themes and reach saturation of the key emerging concepts as bound by the study's scope (Glaser & Strauss 1967).

3.5.7 Secondary data analysis of company reports

Secondary data refers to existing quantitative or qualitative information that is not generated by the researcher themselves (Bryman et al. 2014). In my study, secondary data included integrated and supplementary sustainability reports for the 82 companies in my research sample. I reviewed reports that were available on company websites as at 30 June 2018. I also viewed any visual content, such as videos, that may have been embedded or referenced in company reports.

The company reports provided insights into engagement with the SDGs and examples of visuals that had been used in relation to the SDGs. I used this data to both support and challenge the research findings from the survey and interviews. This comparison with the survey and interview data also mitigated the limitation that organisational documents may not provide 'objective accounts' (Bryman et al. 2014).

3.5.8 Quantitative data analysis

I used Microsoft Excel for my quantitative analysis of the survey data. I obtained guidance on conducting a descriptive quantitative analysis from the Stellenbosch University Centre for Statistical Consultation. It is worth noting that the numerical data from the survey is not as rich in meaning as the information obtained from the semi-structured interviews. The survey data cannot be considered as broadly generalisable and was not intended to support the development of hypotheses or generalised statistical conclusions. Instead, the survey findings provide context for and support the overall research findings.

My analysis of the data included developing frequency tables (Bryman et al. 2014). Table 3.4 shows the frequency table I developed for Question 1 of the survey and provides the number (n) and percentage (%) of companies that belong to each category of engagement with the SDGs. The examples that follow are used to explain the data analysis process, while the detailed interpretation of the data is presented in Chapter 4.

Table 3.4: Frequency table showing current company engagement with the SDGs

Category	n	%
My organisation has fully addressed and integrated relevant SDGs into corporate strategy.	1	3
My organisation has started to implement plans to address the SDGs.	13	41
My organisation is developing plans to address the SDGs.	10	31
My organisation intends to develop plans to address the SDGs.	7	22
My organisation acknowledges the SDGs but does not intend to develop plans to address them.	1	3
My organisation is not considering the SDGs.	0	0
I am not sure of my organisation's engagement with the SDGs.	0	0
Total	32	100

I also developed frequency tables for survey Questions 2 to 7 that explored how different visual categories were used in the various stages of engagement with the SDGs (Figure 3.3). Table 3.5 provides an example for the use of illustrations in assessing the relevance of the SDGs for the company.

Table 3.5: Frequency table showing the use of illustrations in assessing the relevance of the SDGs for the company

Category	n	%
No/Not Sure	2	6
Never	2	6
Rarely	7	22
Sometimes	11	34
Often	8	25
Always	2	6
Total	32	100

Using these tables, I was able to adjust, or normalise, the data to compensate for the companies that had not yet reached a particular stage of engagement with the SDGs. By normalising the data, I was also able to compare the data across different questions. For example, consider the survey Question 2 shown in Figure 3.4 below.

Question 2.1
Consider a generic process for business engagement with the SDGs as shown below and answer the question that follows
Since the SDGs were adopted in 2015, has your organisation considered the relevance of the

```

    graph LR
      A[Consider relevance of SDGs for organisation] --> B[Prioritise specific SDGs for business focus]
      B --> C[Set goals related to SDGs]
      C --> D[Track progress on goals related to the SDGs]
  
```

SDGs to its strategy?

1. Yes
2. No
3. I am not sure

2.2 If yes, please select ONE option per row
How often have the following visuals assisted your organisation in considering the relevance of the SDGs to its strategy?

	Never	Rarely	Sometimes	Often	Always
Illustrations <i>(e.g. pictures, cartoons, icons, paintings)</i>					
Photographs					
Data visualisations <i>(e.g. charts, graphs, infographics, diagrams)</i>					
Moving images <i>(e.g. videos, films, animations)</i>					
3D media <i>(e.g. models, sculptures, 3D displays)</i>					
Other <i>Please specify type and frequency of use:</i>					

Figure 3.4: Question 2 from online survey
 Source: Author

Table 3.6 shows the responses for different visual categories considering all 32 survey responses including those who had answered 'no' or 'not sure' to question 2.1, while in Table 3.7, these responses (n=2 or 6%) were excluded.

Table 3.6: Percentage of companies using visual categories in engagement with the SDGs including 'no/no sure' responses

Percentage of companies						
Relevance (n=32)		Illustrations	Photographs	Data Visualisation	Moving Images	3D Media
	No/Not Sure	6	6	6	6	6
	Never	6	25	0	31	59
	Rarely	22	19	9	28	28
	Sometimes	34	22	19	31	6
	Often	25	19	47	3	0
	Always	6	9	19	0	0

Table 3.7: Normalised percentage of companies using visual categories in engagement with the SDGs excluding 'no/no sure' responses

Percentage of companies normalised						
Relevance (n=30)		Illustrations	Photographs	Data Visualisation	Moving Images	3D Media
	No/Not Sure					
	Never	7	27	0	33	63
	Rarely	23	20	10	30	30
	Sometimes	37	23	20	33	7
	Often	27	20	50	3	0
	Always	7	10	20	0	0

I also developed heat maps to visually assess the use of different visual categories in engaging with and communicating on the SDGs. Figure 3.5 reflects the responses to survey Question 2.2: *How often have the following visuals assisted your organisation in considering the relevance of the SDGs to its strategy?*

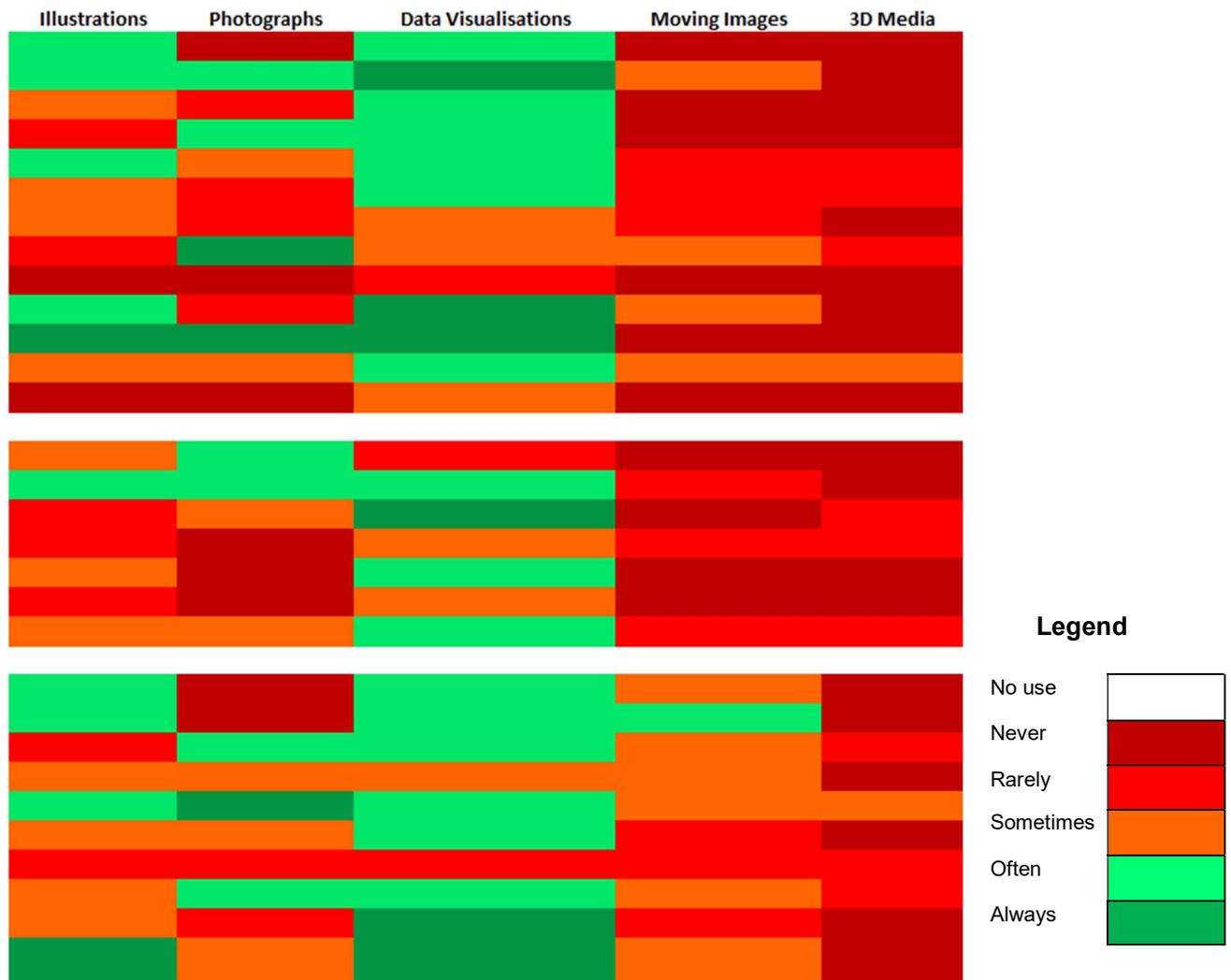


Figure 3.5: Heat map showing frequency of use of different visual categories by companies when considering the relevance of the SDGs for strategy
Source: Author

Visually, the heat map reveals two primary insights that support the data presented in Table 3.6 and Table 3.7; companies most commonly use the data visualisation category (including graphs, charts, and infographics), and, in contrast, companies infrequently make use of the 3D media category.

I analysed the survey open-ended questions, and interview data, qualitatively. In the next section, I discuss my qualitative data analysis.

3.5.9 Qualitative data analysis

Coding is often used in the analysis of qualitative data (Bryman et al. 2014). In grounded theory, coding is a key aspect of the data analysis process (Charmaz 2011; Bryman et al. 2014) and emerging codes and categories are constantly compared, re-evaluated, and elevated to concepts at a higher level of abstraction (Creswell 2007; Charmaz 2011; Gioia, Corley & Hamilton 2012; Bryman et al. 2014). This approach improves analytic rigour and the researcher's engagement with the data (Charmaz 2011).

I used ATLAS.ti, a computer assisted qualitative data analysis software (CAQDAS), to improve the efficiency of the coding process (Bryman et al. 2014), and to simplify the management and comparison of different codes and categories (Charmaz 2011). One of the criticisms of the use of CAQDAS in grounded theory is that it distances the researcher from the data (Charmaz 2011). I maintained my connection to the data by frequently engaging in discussion and memo-writing on the emergent concepts and themes. In addition, although I carried out my initial coding in ATLAS.ti, I developed categories and themes through different methods including printing out and highlighting code reports and using Post-it notes and string to arrange and re-arrange my codes. I describe this process in more detail later in this discussion.

I coded the data by fragmenting the qualitative data and assigning names or codes to the data fragments. The initial codes were not grouped into themes and included broad names such as 'challenge: limited capacity to do everything', 'photograph: corporate image', and 'telling a story' as examples for each of my three research objectives. I used different colours in ATLAS.ti, and different coloured Post-it notes, to simultaneously code data that was relevant to any of my three research objectives. The colours also allowed me to quickly identify data that was significant to more than one research objective.

As detailed by Bryant and Charmaz (2007), as the research progressed, I used an abductive approach to iteratively compare emerging concepts with existing theories while still collecting more empirical data. As explained by Gioia, Corley, and Hamilton (2012:24), "[n]ew concepts, insightful ideas, and even grounded theories themselves have meaning only if they can be related to what we already know". I then grouped and categorised the codes to answer the question of "[w]hat's going on here?" (Gioia, Corley & Hamilton 2012:20). I constantly merged and fragmented categories in this process.

For example, I grouped the code 'challenge: limited capacity to do everything' as part of 'number of SDGs and targets', and later categorised this as a challenge related to developing an understanding of the SDGs. One way that I grouped codes into different categories was by writing codes from ATLAS.ti on individual Post-it notes and then moving these around in different combinations and under different headings. The use of different colours was a valuable resource at this stage due to my large number of initial codes related to the three different research objectives. I also printed out key quotes and attached these to their corresponding code as a reminder of my understanding of each code. I used string to connect emergent research themes that linked codes grouped under different categories or different research objectives.

Figure 3.6 shows an example of how data from the interviews, in the form of quotes, was coded as examples of 'how visuals attract attention', and then, along with 'recognising' and 'connecting', categorised as part of the scanning process in sensemaking.

The final categories of scanning, interpreting, explaining, and influencing, although influenced by an empirical understanding of the literature, were developed through an inductive coding process. The coding process remains true to a constructivist approach to grounded theory and a position of 'theoretical agnosticism' (Henwood & Pidgeon 2003) by subjecting the potential links between the findings and theoretical explanations to rigorous scrutiny.

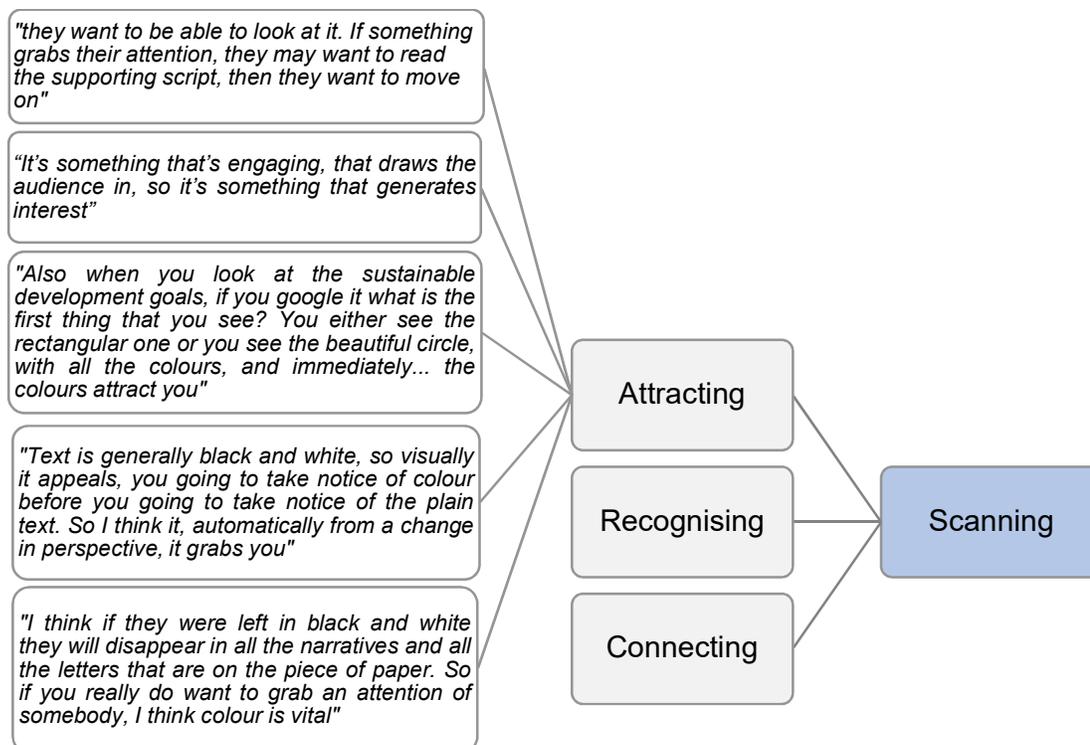


Figure 3.6: Data structure example showing the development of codes and categories from qualitative data

Source: Author

I used journaling and memo-writing to improve my 'critical subjectivity' (Maxwell 2013) and reflect on my potential bias and the influence of my pre-existing knowledge and assumptions on the research (Suddaby 2006; Charmaz 2011; Eisenhardt, Graebner & Sonenshein 2016). For example, I used journaling to detail my own experiences in engaging with the SDGs and critically reflected on the interview transcriptions to minimise the potential that I was inadvertently imposing my own experiences onto the interviewees' perspectives. Such 'reflexivity' (Thornberg 2012; Bryman et al. 2014) is particularly valuable within a constructivist approach to grounded theory (Mruck & Mey 2007) and allowed me to constantly challenge the codes I created.

3.6 Research validity

Throughout Chapter 3, I have addressed aspects of research validity. Indeed, Maxwell (2013) contends that aspects of validity should be incorporated into all research design decisions.

While I have used a mixed methods approach, the research tends to the qualitative side of the continuum between fully quantitative and qualitative approaches. For a qualitative study, the primary criteria for research validity are trustworthiness and credibility (Yin 2011; Bryman et al. 2014). Yin (2011) considers 'transparency', 'methodic-ness', and 'adherence to evidence' as necessary to establish trustworthiness and credibility. In the discussion below, I provide examples of how I aimed to meet these criteria.

First, I consider aspects of transparency. While most qualitative research approaches iterate between theory and data collection (Maxwell 2013; Bryman et al. 2014), this process of 'constant comparison' is emphasised in grounded theory (Bryant & Charmaz 2007; Charmaz 2011; Bryman et al. 2014). Such an iterative, interactive, and systematic approach provides grounded theory with a distinctive 'analytic cast' (Charmaz 2011) and allows for a more transparent research process (Bryant & Charmaz 2007). This is useful in addressing a common criticism of qualitative research that relates to a perceived lack of transparency in data collection and analysis (Bryman et al. 2014). Transparency is also supported by the detailed descriptions in this chapter that explain my research process, highlight specific validity concerns related to the research methods, and justify my key methodological decisions. Highlighting aspects of bias and limitations throughout this chapter also supports the transparency of the research (Yin 2011).

To ensure 'methodic-ness', Yin (2011) suggests the use of cross-checking. For example, cross-checking may include comparing data from two different sources and highlighting areas of agreement or any discrepancies for further evaluation (Yin 2011). Throughout this chapter I have highlighted elements of cross-checking that I have used in the research process. Cross-checking was a useful way for me to maintain 'methodic-ness' within an iterative and inductive research design.

Next, I consider my 'adherence to evidence'. According to Yin (2011:20), "qualitative research should be based on an explicit set of evidence." Throughout Chapter 4, I provide examples of the supporting evidence for my research findings. To ensure the validity of the data, or 'the set of evidence', I used multiple methods such as an electronic survey, interviews, secondary data analysis, informal discussion, and journaling in the research process. This process of 'triangulation' (Yin 2011; Maxwell 2013; Bryman et al. 2014), where multiple methods are used to cross-check and validate the study's findings, improves the reliability of the research.

Finally, it should be noted that although my research tends to the qualitative, the quantitative data analysis was informed by discussion with the Centre of Statistical Consultation at the University of Stellenbosch. In this way, I was able to obtain additional guidance on how best to interpret my survey findings, as well as how to establish the limitations of my quantitative data.

3.7 Chapter summary

The research design presented in this chapter intended to meet my research objectives presented in section 1.4. I used a mixed methods research approach, underpinned by a constructivist-interpretivist research paradigm, and a grounded theory methodology. These integrated aspects of my research design reflect my understanding of social phenomena, supported the study aims, and facilitated the practical collection of data. These aspects were explored in sections 3.2 to 3.4. Section 3.5 provided a detailed description of the research process and methods. Aspects of research validity, presented throughout the chapter, were summarised in section 3.6.

Chapter 4 - Research findings

4.1 Introduction

In this chapter, I discuss the research findings for each of my research objectives defined in section 1.4.

First, I provide an overview of the current engagement of companies in South Africa with the SDGs. I discuss how the SDGs may catalyse and frame business action on sustainability and how businesses may contribute to the sustainability agenda. I then present the eight key challenges I identified that companies experience when engaging with the SDGs.

Next, I discuss what visuals companies in South Africa are using in understanding and communicating on the SDGs. I provide an overview of general trends, followed by a more detailed discussion on the key findings related to the use of infographics, video, and 3D media. I also provide examples of the use of visuals in company reports.

I then explore how sustainability practitioners in companies in South Africa are using visuals to contribute to the sensemaking and sensegiving of the SDGs. I consider why the SDGs may trigger sensemaking/sensegiving and discuss the use of visuals in support of four key sensemaking/sensegiving processes of scanning, interpreting, explaining, and influencing. Following this, I briefly discuss how visuals may constrain the processes of sensemaking/sensegiving. I conclude this section with a summary of the key findings presented in support of each research objective and provide an overview of how the research may have affected the participants' views on visuals and their use in relation to sustainability themes.

4.2 Establishing the engagement of companies in South Africa with the SDGs

In this section, I present the research findings in support of my first research objective that aims to establish the current engagement of companies in South Africa with the SDGs.

4.2.1 Overview of companies' engagement with the SDGs

My research showed that although business awareness of the SDGs is high, many companies are yet to assess the underlying targets, fully integrate the SDGs into business strategy, and develop quantitative metrics for measuring progress.

As shown in Figure 4.1 below, almost all of the sustainability practitioners that responded to the survey indicated that their company intends to either start or continue with the development of plans in response to the SDGs. The survey findings were supported by the interviews, where respondents from all except one company indicated that they had already embarked on processes to create awareness of the SDGs and identify the most relevant goals to their business.

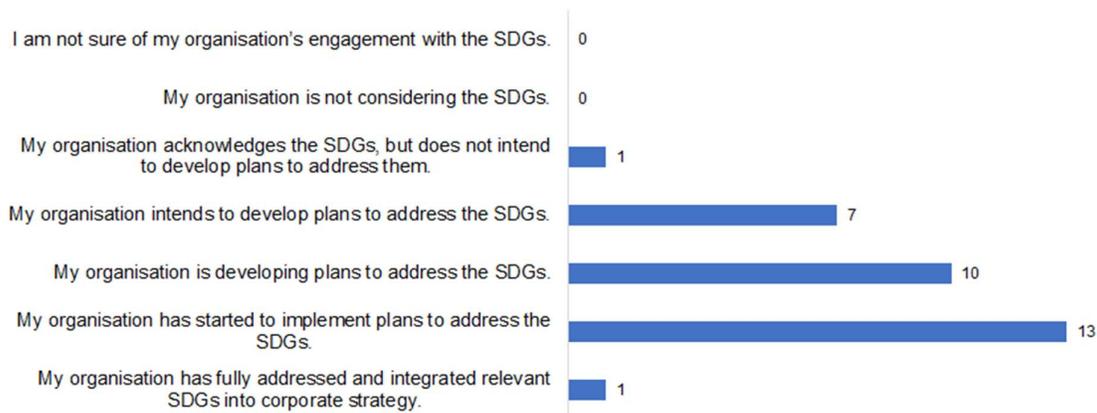


Figure 4.1: Survey results of the engagement of 32 companies with the SDGs

Source: Author

However, progress in implementing strategy related to the SDGs is varied. Almost half of the companies I interviewed were still in the initial stages of developing an understanding of the goals and how they may be relevant to their business, as expressed by Respondent C1: *"We're in the process of understanding the types of things that qualify... [and] learning a lot about the targets that fall within each goal"*.

To identify the goals of most relevance to their business, many companies map existing company or sectoral activities to the SDGs. For example, one respondent explained how they worked with a company to undertake a materiality assessment that considered material issues from a company, industry, and national perspective at a goal and target level. They explained how they then *"picked against those 17 goals which are the targets that we think would make sense from either managing risk better or leveraging opportunity better"* [Respondent C11].

As Respondent C11 further explained, using SDG 7 (affordable and clean energy) as an example, sustainability practitioners need to consider both how to unlock new opportunities “*by doing renewable energy financing*”, as well as how to contribute towards “*less harm in terms of what other fossil fuel energies you are financing*” when assessing the relevance of the SDGs to their business.

Only two of the companies I interviewed had progressed beyond identifying how their material issues map to the SDGs and were in the process of integrating the goals into corporate strategy. Respondent C2.1 explained how their company had “*hardwired the SDGs into [their] business strategy*”. They further explained:

In embedding the SDGs into our sustainable development strategy, we went through a process, and firstly we mapped the SDGs to our material issues... [now] we know what we're up against, we know where we want to be, there's now some creative tension. How do we start, how do we understand what our focusing challenge is, in order to get from here to there? And using that aspiration as a line of sight, [we] started crafting strategy maps, and saying 'what are our strategic focus areas and what are the things we [are going to] focus on, and how do we translate that into a coherent set of actions using balanced scorecards?

I found that the next phase of engagement relates to developing ways to measure business success in implementing strategy related to the SDGs. To measure success, companies will need to develop quantitative metrics, such as key performance indicators (KPIs), to track and assess their progress. This was echoed by Respondent C5, who shared:

At this stage, we need to have an awareness of how we are addressing the SDGs...and it might require us refining the KPIs we're already measuring, or, adding additional ones according to how the SDGs are defined. That's my next step...to see how we measure how successful we are.

However, only two companies have already set quantitative targets, while eight companies have started to develop qualitative objectives in support of the SDGs.

Throughout the process of engaging with the SDGs, almost all of the sustainability practitioners highlighted the importance of creating an awareness of and support for the SDGs within their own organisation. As expressed by Respondent C1, it is necessary to “*work with the people in the other departments to help them understand what these goals mean for them*”.

This process of internal socialisation is important to gain the support of executive management who, as described by Respondent C2.1, often approve strategy for implementation: *“We then took all of that piece of work [on the SDGs], and put it into a file, and started having a conversation with the CEO, because we needed the CEO to sanction that mandate”*. However, it is equally important to ensure that the operational divisions of the company, who are often ultimately responsible for implementation, also assist in shaping strategy as expressed by Respondent C14: *“In cappuccino central, we’re all brain-washed, we kind of all think in a very harmonised way. So, we then had to go back to the [business units], and say, ‘ooh, guys, we need to bring you on this journey”*”.

Although to date there has been limited progress in translating an awareness of the goals into an actionable strategy, the majority of companies that participated in the research appear to now be embarking on this process.

However, these promising findings may mask broader - and less encouraging - trends of low company engagement with the SDGs in South Africa. I analysed the publicly available annual integrated and supplementary sustainability reports of all 82 companies in the research sample. I based my analysis on the extent to which the reports mentioned the SDGs and grouped the companies into four categories as shown in Table 4.1.

Table 4.1: Categories of engagement with the SDGs based on references in company reports

	Category name	Category description
1	No reference to the SDGs	There is no reference to the SDGs in the company reports
2	Limited reference to the SDGs	The SDGs are mentioned as a framework that was considered for the report, or as an intended future framework, with no further evidence of engagement
3	Some reference to the SDGs	There is some evidence of a high-level mapping of the SDGs to existing business activities which is generally summarised in a single table in the company report
4	Significant reference to the SDGs	References to the SDGs are integrated across the report and there is clear evidence of integration into business strategy

As shown in Figure 4.2, of the 82 companies I analysed, about two thirds make no or limited reference to the SDGs in their reports.

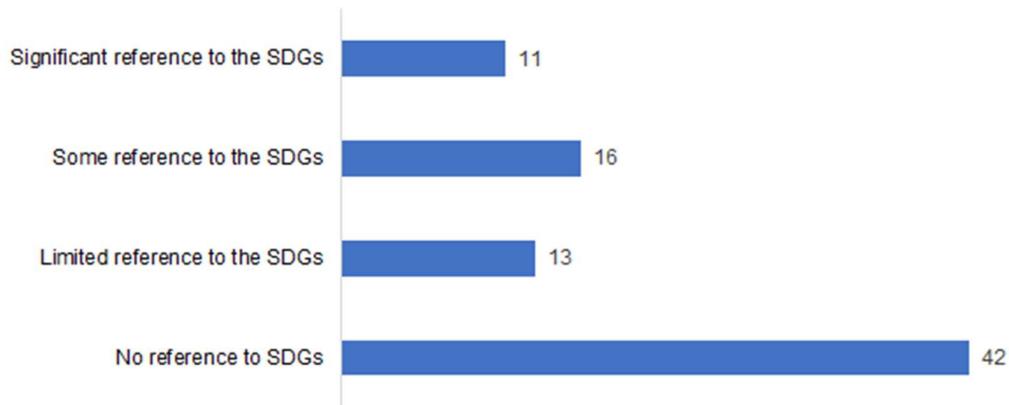


Figure 4.2: The extent to which the SDGs are mentioned in company reports by 82 companies in South Africa
Source: Author

Certainly, references to the SDGs in company reports may not fully reflect the extent of a company's engagement, as it may not reveal on-going internal activities. Also, as noted by Respondent C9: "*Whether disclosure equals performance is another question altogether*". However, a closer examination of the survey responses indicates that most of the companies with significant reference to the SDGs responded to the survey, while I received fewer responses from companies with no reference to the SDGs in their reports.

This may suggest that the survey was 'self-selecting' and that companies that were already engaging with the SDGs preferentially responded to the survey. Therefore, the research findings presented may be overly optimistic about the awareness and engagement of companies in South Africa with the SDGs.

4.2.2 Reasons for business engagement with the SDGs

In this section, I explore the motivation for business engagement with the SDGs. My findings suggest that the SDGs may both catalyse and frame business action on sustainability.

The SDGs catalyse action by providing incentives for business engagement with sustainability topics. As illustrated in Figure 4.3, my research identified financial, legal, and ethical reasons for business engagement with the SDGs.

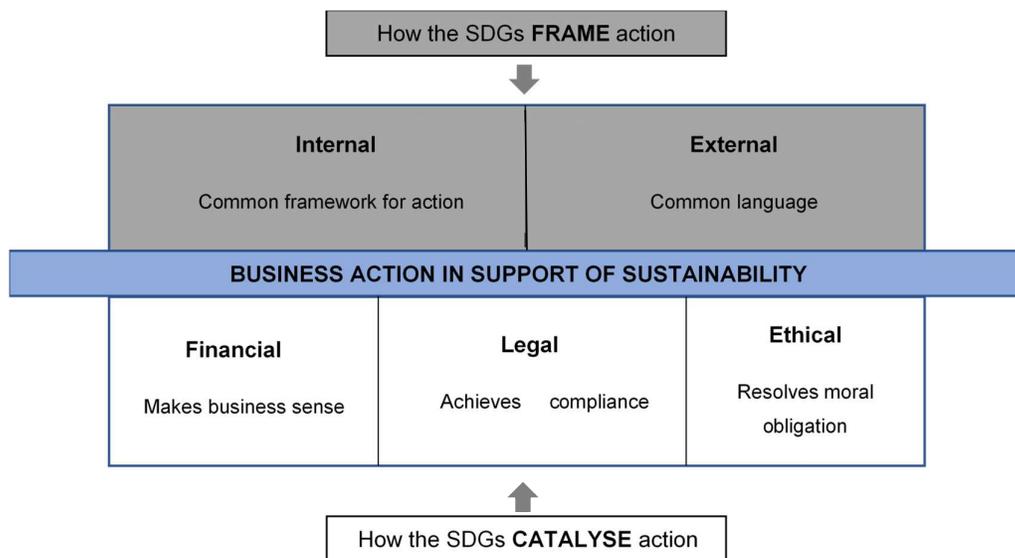


Figure 4.3: How the SDGs both catalyze and frame business action on sustainability
Source: Author

The SDGs also provide a structure, or frame, for business action on sustainability. As illustrated in Figure 4.3, the SDGs may serve as an internal framework for action or provide a common language for sustainability topics between business and other stakeholders. I explore these categories in more detail below, starting with a discussion on how the SDGs may catalyze business action in support of sustainability.

The first category for business engagement with the SDGs relies on a *financial* incentive, where *business sense* motivates action. There may be a direct economic benefit to the company to engage in activities that support the SDGs. For example, the company may derive an economic benefit from cost savings related to energy efficiency activities, while also reducing GHG emissions from fossil-fuel based energy sources: *“That’s the reasoning behind energy efficiency; it’s saving money and it’s also addressing GHGs”* [Respondent C5]. A company may also derive financial benefit from new business opportunities unlocked by the SDGs. The potential for ‘trillion of dollars of opportunity’ is often referred to as the ‘SDG prize’: *“There’s this idea of the SDG prize, [where] if you look at the opportunities from meeting the SDGs in a more commercial way, or from a market-based way, there’s a huge amount of money to be made”* [Respondent C15].

In addition to direct financial gains, it also makes business sense to ensure a resilient relationship between the company and its social and environmental context. To sustain its long-term ability to make a profit, business needs to maintain its social licence to operate:

“As a business, regardless of what you do, I think you need a healthy community, a healthy environment, a healthy social setting, for you to exist... business relies on a community for a lot of things, [for example] they rely [on a community] for their human resources”

[Respondent C3].

A company must also be cognisant of the ‘finite environmental limits’ within which they operate, for as Respondent C9 prompts: *“If the Earth can’t support you...then what are you going to do?”* According to Respondent C15: *“You can’t build walls between you, your company, the society, and the environment where you make money”*. Figure 4.4 is illustrative of this concept of interdependent relationships and also shows how the SDGs map to the different environmental, social, and economic spheres.



Figure 4.4: Embedded nature of business, society, and the environment illustrated by the SDGs. Source: Folke, Biggs, Norström, Reyers & Rockström (2016)

The second category relates to how *legal* motivations, where a company *aims to comply* with social and environmental laws that are aligned with the SDGs, catalyse action on sustainability. For companies operating in South Africa, compliance with national transformation policies such as Broad-Based Black Economic Empowerment (B-BBEE) is a compelling legal incentive. Although sustainability may not be the primary driver for B-BBEE activities, businesses often align B-BBEE policies to goals such as SDG 5 (gender equality), SDG 8 (decent work and economic growth), and SDG 10 (reduced inequalities).

Figure 4.5 provides an example from a company report that shows a link between business activities in support of B-BBEE and SDG 11 (sustainable cities and consumption).

FINANCING INCLUSIVE GROWTH

Nedbank embraces the role it plays in helping to create real economic opportunities for black businesses in SA and in partnering with them to ensure their success as viable, productive participants in the country's socioeconomic development.

Our holistic empowerment financing model has provided funding for a range of initiatives, including transformational infrastructure projects, affordable housing, black agriculture, black small and medium enterprises (SMEs) and broad-based black economic empowerment (BBBEE) transaction financing. Since 2012, the base year for our FSC commitments, we invested a total of R68bn towards empowerment financing. We also continue to invest into a broad cross-section of enterprise development initiatives and programmes.

For full details of all our transformation efforts please see the 2017 Nedbank Transformation Report, which can be downloaded at nedbank.co.za.



Goal 11: Sustainable cities and communities

Figure 4.5: Excerpt from company report illustrating the link between B-BBEE activities and the SDGs
Source: Nedbank (2017)

There is also a form of 'pseudo-compliance', where although not formally mandated in national or international law, institutional frameworks may compel companies to align their activities with certain ESG themes. For example, listed companies on the JSE must apply (or explain where they do not) King IV that *"talk[s] about looking at environmental, social, and governance issues"* [Respondent C9].

Finally, the SDGs may act as an *ethical* catalyst for business action on sustainability where companies feel a *moral obligation* to contribute towards the 'greater good'. According to Respondent C8, this moral imperative represents *"the difference between 'want to' and 'have to'"*. Business decisions may now consider moral incentives alongside financial and legal motivations as described by Respondent C14: *"In the past your discussion would have been, 'can we make a business case out of this?' and that would have been it. Now, part of it is a business case [and] part of it is this greater good in achieving a goal"*.

This moral obligation may result from a sense of responsibility related to business' position in society and its contribution to unsustainable development:

[Business has] largely contributed to some of the inequalities that the SDGs are trying to respond to... and so there's a greater understanding that's happening now that says, 'listen, we do need to start thinking about this, we've got to consider that the economic growth model we followed up to now has resulted in many of these inequalities, largely because we haven't internalised social issues, environmental issues...and we've pursued growth at any cost with the holy grail [as] your financial results.

[Respondent C9]

As illustrated in Figure 4.3, the SDGs may also provide a structure, or framework, for business activities and communication in support of sustainable development. Within a company, the SDGs provide a framework for contextualising activities that may influence or be influenced by a company's sustainability efforts. For example, Respondent C14 indicated that they are now able to “pitch sustainability activities in terms of the goals”.

Externally to the company, the SDGs provide a common language that may facilitate a discussion on sustainability topics between diverse stakeholders:

The goals [have] given everybody the structure to speak about [sustainability], whether you are an individual just wanting to contribute your recycling effort or whether you are a corporate with organisational ability to help... because otherwise, we [are] coming from such different dimensions, your version of sustainability is all or nothing and mine is very little, but suddenly we [start] engaging on the same conversation level, and that's where I think the goals have been brilliant.

[Respondent C14]

4.2.3 The contribution of business to the SDGs

In this section, I discuss the ways that business may contribute to the sustainability agenda. Interviewees identified the availability of financial capital (Respondents C8, C9, and C11), organisational capability and knowledge (Respondents C2.1, C8, C9, C11, and C14), and human resources (Respondent C8) as some of the ways that business may contribute to the SDGs.

Companies may provide financial capital in support of the SDGs. According to Respondent C9: “If you look at it purely from a funding perspective there's no ways that governments can pick up all of that to be able to achieve the goals as set out in the SDGs”. Therefore, as the “biggest other contributor to economic growth” [Respondent C9], companies may support the public sector in funding the SDGs. The role of business in providing ‘blended finance’ is particularly relevant to companies in the financial sector who may not only directly fund SDG initiatives, but also facilitate financing by bringing together “different players that can take different risks and bring different types of capital to the party” [Respondent C11].

Business may also contribute its competencies, such as “*organisational design capacity [and] planning*” [Respondent C14], specialised knowledge, and broader skillsets that may be applied to ensure projects “*run efficiently and effectively*” [Respondent C9]. Importantly, “*the biggest thing that the business brings [to the SDGs] is the enterprise itself*” [Respondent C2.1]. By reconfiguring its product and service offering, companies may be able to play a role in “*tilting core business to deliver more positive societal good*” [Respondent C11]. Several interviewees highlighted the need for business to contribute to the SDGs through core business strategy, and not only through corporate social investment or CSR initiatives.

Finally, Respondent C5 suggested that business was able to contribute “*manpower to make a difference*”, acknowledging that achieving the SDGs will require significant human resources. However, as explored as part of the following section on business challenges in engaging with the SDGs, resource constraints may be challenging for companies themselves.

4.2.4 Business challenges in engaging with the SDGs

In this section, I discuss the challenges for business in engaging with the SDGs. The eight key challenges identified by the sustainability practitioners in this study are presented in Figure 4.6 and discussed below. While the process of engaging with the SDGs is often iterative and non-linear, these challenges appear to track the progression of business engagement with the SDGs from the development of an understanding of the goals, to the integration of the SDGs with existing sustainability frameworks. As such, the challenges are mapped to five stages of business engagement with the SDGs: developing an understanding of the SDGs, making the SDGs meaningful for business, creating awareness and focus within the organisation, operationalising the goals, and integrating the SDGs into existing frameworks and strategies.



Figure 4.6: Challenges experienced by sustainability practitioners during the process of engaging with the SDGs

Source: Author

In the discussion that follows, I explore the challenges associated with each of these stages in more detail, using Figure 4.6 as a guide.

Developing an understanding of the SDGs



In this stage, the key challenge relates to developing a familiarity and understanding of not only 17 broad goals, but also the underlying 169 targets, and the various ways in which the goals may influence and interact with each other: *“I think people get very confused, 17 goals, 17 interfaces [and] I mean its exponential, it’s not [even] 17 interfaces”* [Respondent C14].

Companies may therefore need to spend a significant amount of resources in familiarising themselves with the SDGs and their targets. However, resource constraints may impede this process: *“We have limited resources, we have limited funds, we can’t tick all the boxes all the time, that’s just not feasible from a business perspective”* [Respondent C7].

Being unable to ‘tick all the boxes’ also implies that companies need to be strategic in interpreting which goals are relevant to their business. There appears to be two key challenges associated with this process of translating the SDGs into something that is ‘meaningful’ for business which I discuss next.

Making the SDGs meaningful for business



The first challenge is that the “*targets are written in a way that is geared towards sovereigns*” [Respondent C1]. This framing may make it difficult for companies to translate requirements as part of the global imperative into action at the local level and, specifically, for a business context. Business also requires governmental frameworks that support company strategy: “*You first need to get the country’s commitment [to the SDGs], otherwise you’re a floating [island] to some extent*” [Respondent C12].

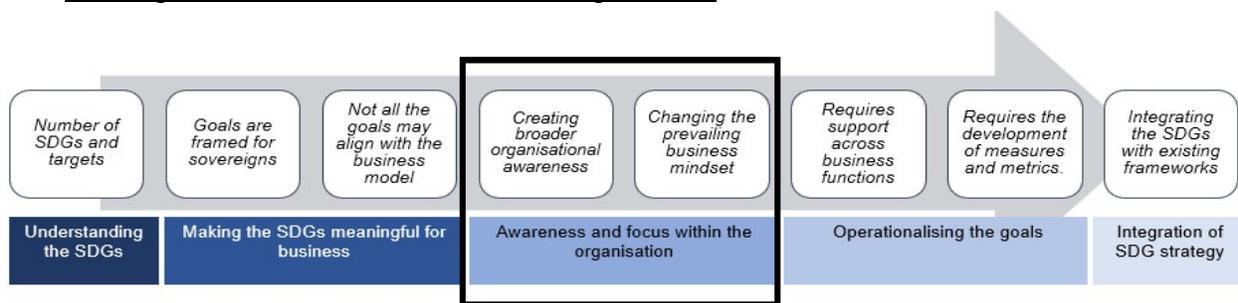
In addition to translating the goals for business in general, sustainability practitioners need to understand the relevance of the goals for their specific sector and company. However, not all of the goals may align with their business model. Almost all of the sustainability practitioners identified this process of understanding how specific SDGs may align with the company’s competencies, organisational culture, and strategy as challenging and confusing. As expressed by Respondent C10:

I don’t think they’re all relevant to every company, and I think it’s important that companies choose which SDG’s they can contribute towards, because I wouldn’t want to have a company contributing to all when it’s not strategic to their own business, and their operating model, and their expertise.

It is also important for the practitioners to develop an understanding of the detailed targets that underpin each goal. A superficial understanding at the goal level only may lead to additional confusion and rework of strategy at a later stage as described by Respondent C17:

When the goals were published in 2015, by looking at the visuals we thought ‘well this should be easy’, and we tried to align our focus areas with the SDG’s. But then we later realised the detail...if you look at anti-poverty for instance, it looks like just any poverty, but there’s a whole lot of finer detail behind that... So, we might need to change our strategy, or tweak it a bit...because we can’t really say we are aligning to ending poverty, and then you look at the targets, and our initiatives don’t actually align to the target.

Creating awareness and focus within the organisation



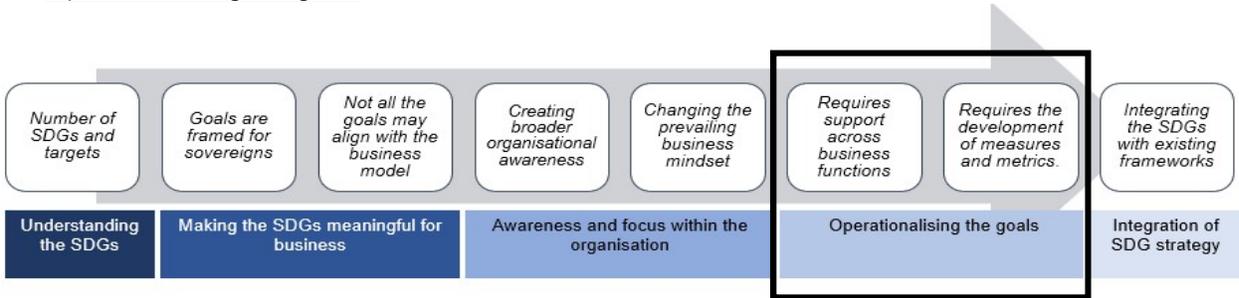
The challenges at this stage relate to extending an awareness of the SDGs beyond the sustainability practitioner and sustainability function to the broader organisation. As expressed by Respondent C12: *“Where I have a challenge is to communicate [the SDGs] to the rest of the team, because they’re not working as closely on sustainability”*.

Interestingly, Respondent C15 reflected that although the ‘average employee’ may be interested in the broader sustainability strategy of the company, the specific way in which these activities link to the SDGs is irrelevant. However, the implementation of sustainability strategy often requires cross-functional support. Therefore, it may be crucial to extend an awareness of the SDGs beyond the sustainability team. For Respondent C10, this challenge - and responsibility - rests firmly with the sustainability practitioner:

I think sustainability professionals have to be multi-faceted... and be able to have a sort of understanding of the different departments, the different areas of society and stakeholders, and be able to make those links that someone in a traditional role might not be able to make because they’re focused on what they have to do. How their job feeds into the big picture, well that’s not their problem. So, we have to be the ones to say, ‘you know what, by you actually doing your job, it feeds into the big picture here, and it’s actually making a positive or negative difference’.

In sharing the SDGs with the rest of the organisation, sustainability practitioners must often confront the prevailing, often challenging, profit-focused business mindset: *“The most significant challenge is changing the heart and the mind of the organisation to understand how it plays within society”* [Respondent C2.1]. Practitioners must often challenge the view that sustainability has *“a conflicting objective to some business objective”* [Respondent C9], such as the generation of financial returns for shareholders. It may also be challenging for sustainability practitioners to create a dialogue within their company on the role of business in creating an unsustainable growth path and actually *“[have] the conversation to say, ‘what we’re trying to do is firstly accept responsibility for the fact that many of these things have been created as a consequence of unsustainable development [and] growth models that basically pursue finance beyond anything else’”* [Respondent C9].

Operationalising the goals



I now explore the challenges in operationalising the goals and “*getting all the people on board to help make this thing happen*” [Respondent C5].

As previously mentioned, operationalising the SDGs often requires support across different business functions. One respondent described this challenge of co-ordinating a response that requires the skills, human resources, and time from different departments: “*You can’t just do it as a sustainability manager on your own, you have to involve the communications department, the corporate affairs department...they have to be on board, and it takes resources and time*” [Respondent C5].

However, some respondents also saw this as an opportunity for collaboration, which in itself supports the objectives of SDG 17 (partnerships for the goals). Collaboration may take place between different departments in an organisation as in this example by Respondent C3 on aligning reporting on social and environmental initiatives: “*What we are trying to do is to integrate the people that handle issues like your CSR, to say ‘let’s align how you report these indicators with how we report our environmental indicators’*”. In addition to “*breaking the silos that exist within business units*” [Respondent C3], the shared objective of achieving the SDGs may also promote collaboration between organisations. One respondent described how the SDGs facilitated a mindset shift in their company to a focus on collaboration and partnership:

Whereas in the past [Company C14] was always really isolated, we go it alone, it was [our] way or the highway, what we’re saying with the goals is [Company 14] does believe [partnerships] are the way to genuinely achieve outcomes, whether it be a partnership with your community [or] a partnership with government.

[Respondent C14]

A second challenge related to operationalising the SDGs is the development of measures and metrics: *“I think the indicators, creating the metrics to actually record them is quite difficult”* [Respondent C10]. The practitioners were concerned that innovative business responses to the SDGs would also require novel measurement systems. In addition, the practitioners indicated that *“to measure from the start is difficult”* [Respondent C10], and that previously agreed upon indicators may be inadequate to measure performance during and at completion of a project.

However, if companies are unable to develop metrics and indicators, then they will also be unable to set targets, measure progress, and report on initiatives that support the SDGs. In addition, without credible data, companies may be unable to gather and manage the information that is needed to develop a sustainability strategy in the first place.

Integrating the SDGs with existing frameworks



Finally, sustainability practitioners may also need to find a way to integrate the SDGs with existing reporting and sustainability frameworks. The number of reporting standards that already exist in South Africa may deter companies from engaging with the SDGs: *“There are too many reporting standards, too many reporting frameworks, guidelines... I think it’s enough to balance as it is”* [Respondent C10]. This challenge of balancing the SDGs in an already ‘over-regulated’ environment was echoed by Respondent C8: *“There’s so many requirements...that we’re trying to satisfy: King IV, GRI, Integrated Reporting, and all of them are different... and the TCFDs¹ are coming. and then [the] SDGs are coming, so all of those you’re trying to satisfy”*.

¹ Task Force on Climate-related Financial Disclosure

In response to this challenge, several of the sustainability practitioners shared their experiences of engaging in intensive sessions, often involving external consultants supported by a core team within the organisation, to develop a customised sustainability framework for their company that leverages insights from different sustainability resources and frameworks including the SDGs.

4.3 Identifying what visuals companies in South Africa are using in relation to the SDGs

In this section, I present the findings in support of my second research objective: to identify what visuals companies in South Africa are using in understanding and communicating on the SDGs. I first outline the results of the survey showing what visuals companies are using for engaging and communicating on the SDGs. I then consider the specific advantages and constraints of infographics, video, and 3D media. Finally, I review and draw insights from examples of visuals used by companies in their integrated and sustainability reports.

4.3.1 What visuals are used for engaging with and communicating on the SDGs

Exploring what visuals companies are using to engage with and communicate on the SDGs, I initially found that the overall use of visuals decreased with practitioners' increased engagement with the SDGs. However, as discussed in section 4.2, the survey data on the use of visuals is merely reflective of the overall early stages of business engagement with the SDGs. The complete quantitative survey results are available in Appendix C.

Still, where companies have used visuals in their engagement and communication on the SDGs, I was interested in assessing their use of different visual categories. My findings suggested that companies commonly use data visualisations in engaging with and communicating on the SDGs. The preference for data visualisations extends across all stages of engagement: assessing relevance, prioritising, and the setting and tracking of targets, as well as for internal and external communication. Sustainability practitioners particularly highlighted the use of infographics for attracting attention, explaining interconnectedness, and summarising information.

In contrast, there is limited use of moving images and 3D media. While both visual types are constrained by high development costs and labour demands, practitioners expressed additional concerns that 3D media may be perceived as ‘childish’ or ‘frivolous’, and that the medium’s audience is geographically constrained. The primary constraint related to the use of moving images appears to relate to most companies still being in the conceptual stage of engagement with the SDGs. As engagement progresses, the use of moving images, appreciated for its role in creating a sense of authenticity for its audience, may increase. Interestingly, my results also showed there was little difference in how visuals are used for internal and external communication.

Table 4.2 and Table 4.3 below provide further quantification for the trends discussed above. As discussed in Chapter 3, the responses were normalised to enable comparison between categories. Table 4.2 shows the percentage of respondents that answered ‘always’ or ‘often’ to the question of how frequently their company used visuals in engaging with the SDGs. The stages of engagement are based on the generalised framework I introduced in Chapter 3 as Figure 3.3.

Table 4.2: Percentage of companies using a visual category ‘always’ or ‘often’ when engaging with the SDGs

	Assess relevance	Prioritise	Set Goals	Track Progress
Illustrations (%)	33	35	33	29
Photographs (%)	30	22	13	21
Data Visualisation (%)	70	61	60	50
Moving Images (%)	3	4	7	7
3D Media (%)	0	0	0	0

The results clearly indicate the preference of the respondents’ companies for data visualisations. The infrequent use of moving images and 3D media is striking. In addition to the absence of ‘always’, or ‘often’ responses to the use of 3D media, across three of the four categories of engagement, more than 90 percent of respondents indicated that they ‘rarely’ or ‘never’ used 3D media.

The percentage of companies ‘always’ or ‘often’ using a visual category for internal and external communication on the SDGs is shown in Table 4.3 below.

Table 4.3: Percentage of companies using a visual category ‘always’ or ‘often’ when communicating on the SDGs

	Internal communication	External communication
Illustrations (%)	54	58
Photographs (%)	21	25
Data Visualisation (%)	58	54
Moving Images (%)	8	4
3D Media (%)	4	0

Table 4.3 indicates that more than half of the companies that responded to the survey ‘always’ or ‘often’ make use of data visualisations when communicating both internally and externally on the SDGs. Illustrations are also commonly used for communication on the SDGs. Once again, the use of video and 3D media is limited. Based on concerns related to the ‘accessibility’ of 3D media, discussed in more detail in section 4.3.2, it is unsurprising that it is more commonly used for internal communication.

The findings above also suggest little difference in how companies use visuals to communicate to different stakeholder groups. There is some evidence from the interviews that supports this finding: *“We’ve used the same visuals, whether we’re speaking to the guys in [Country X], who are not English speakers versus the executive... we’ve kept it standard”* [Respondent C14]. While this alludes to the ability of visuals to transcend boundaries, which I explore further in section 4.4, it also masks nuances in how the use of visuals may be subtly altered to suit different stakeholder groups. For example, one respondent described how different colour palettes are used for internal and external communication: *“For internal communication you’re allowed to use the more vibrant, colourful, emotive colours, but when you communicate externally there’s always a secondary palette of colours which are more conservative”* [Respondent C5]. Another respondent described how their company used different visual media to communicate to different external stakeholder groups: *“In the age of tech and innovation and fintech, if we wanted to communicate to stakeholders in that space, we might want to use video, versus communicating to government stakeholders where printed colourful graphics on a factsheet might be the better way to go”* [Respondent C1].

4.3.2 A further exploration of infographics, video, and 3D media: Advantages and constraints

The discussion in section 4.3.1 largely focused on three visual categories: data visualisations, moving images, and 3D media. In this section, I explore possible reasons why sustainability practitioners commonly use data visualisations, and in particular infographics, when engaging with the SDGs. I then discuss the advantages of video and its potential future use in relation to the SDGs, and conclude this section with a reflection on how the use of 3D media is constrained.

Infographics emerged as a favoured visual type for engaging with sustainability, and other, topics: *“I love infographics. I think they’re great! They’re great, short, little pieces of communication that very clearly get a concept across to people who have less than three minutes”* [Respondent C2.2]. As alluded to by Respondent C2.2, infographics are considered useful for summarising information. For example, one respondent described their use of an infographic to explain the key aspects of the 2015 Paris Agreement to the executive management in their company: *“When the Paris Accord was signed, immediately there was a whole slew of information that came out, and obviously we had to advise our [committees]... and upfront we had the infographic with just the key bullets and the key targets”* [Respondent C6].

Infographics may also be used for exploring interconnections, such as those between the SDGs:

If we were to talk about something like climate change, sure you’ve got [SDG] 13, but...I can have a conversation with you where I can show you how climate change affects each and every one of those 17 SDGs. And the best way, I think, or a very powerful way at least, of showing the interconnections, of showing the relationships, of showing the impacts, would potentially be through diagrams or infographics or visuals, I wouldn’t want to write an essay about it.

[Respondent C6]

In addition to making information more concise and explaining interconnected concepts, infographics were also considered to be more visually appealing than text. Respondent C14 described how they translate text-based information in their sustainability report into infographics to make the information more engaging: *“We look at a relevant portion that I think could be in a nice infographic, and [we try to] change people’s eye-mind interaction with that piece of information to make it more gripping and compelling”*.

Next, I briefly discuss moving images and 3D media. In contrast to infographics, these visual categories were rarely used in engaging with and communicating on the SDGs.

Although infrequently used, interviewees reflected positively on the use of moving images in relation to sustainability topics. Interviewees expressed the view that videos create a greater sense of engagement and authenticity for the viewer as described in the following example by Respondent C2.2:

If somebody from a community is talking about a water project and...she's saying that they never used to have water in that area, and you hear the water in the background, and you hear the kids playing in the water...that has an enormous impact on how the viewer experiences the authenticity of what is being presented to them.

The interviewees also reflected on how videos helped them to quickly understand and connect with sustainability topics, such as ocean plastic pollution: *"In that one and a half minutes [of the video] you've realised the problem is that plastic pollution is choking the oceans, and in fact there's a continent of waste the size of the United States"* [Respondent C9], and how even popular media, such as the movie *The Lorax* (based on the book by Dr Seuss), may convey sustainability messages: *"[The Lorax] is a movie about sustainability; if you chop off all the trees...and you pollute the air and the ground and the water, well then you destroy Earth as we know it, and you destroy life, and then there's nothing for anyone to benefit from"* [Respondent C6].

Considering these positive reflections, the use of moving images may primarily be limited by the early stages of business engagement with the SDGs. Indeed, while there is limited use of video that explicitly references the SDGs, several companies have already used videos in relation to general sustainability themes.

In contrast, the companies of only two of the sustainability practitioners had used 3D media in relation to social or environmental themes. One company had used a sculpture as part of a social media campaign, while the other had used a 3D exhibition to raise awareness of the company sustainability framework.

The limited use of 3D media may be related to concerns regarding its cost: *"I think it's just incredibly intense, from a resource and a financial perspective...if you've got a smaller budget in tight economic times, investing in 3D is always at the bottom of your list"* [Respondent C2.2].

The practitioners were also concerned about its potentially limited audience “*because people would have to be physically and geographically present to see it*” [Respondent C5], and the perceived lack of legitimacy of 3D visuals in a business environment: “*Maybe because [3D] hasn’t been done well before and so people become quite dismissive of that kind of learning experience, because it can come across as frivolous or childish*” [Respondent C11].

4.3.3 The use of visuals in company reports

Turning my attention to the visuals used in companies’ integrated and sustainability reports, I now discuss how companies have used icons, illustrations, photographs, and infographics to communicate on the SDGs in their formal reports to stakeholders. Although some reports included videos on sustainability themes, these often did not explicitly reference the SDGs, and I could not replicate video in this report. Indeed, there were a limited number of reports that used any form of visuals, other than the SDG icons themselves, when communicating on their strategy in relation to the SDGs. The six examples I selected therefore merely provide an illustrative sample, rather than a detailed content analysis, of the ways that visuals may be used to communicate on the SDGs.

I use the first three visuals to highlight the role of icons and colour in connecting information. I then provide an example of a visual metaphor for business strategy related to the SDGs. Finally, I provide two examples of visuals, that use a rich combination of illustrations, icons, and colour, to explore aspects of the company’s sustainability strategy. These six visuals serve as a bridge, providing practical examples of the use of visuals in relation to the SDGs as discussed in section 4.3, and introducing the role of visuals in connecting, contextualising, untangling, and symbolising information as part of the themes that I explore in section 4.4. However, it is worth acknowledging that the richness of the discussion is limited by the small sample of available visuals.

The first visual, shown in Figure 4.7, illustrates how the SDG icons may be combined with company-specific icons that highlight the material aspects of the company’s sustainability strategy. Throughout the company sustainability report, the icons are then used as a navigational tool to categorise information and as a way of reinforcing the connection between the company’s activities and the SDGs.



Figure 4.7: Use of SDG and company icons illustrating company activities in support of sustainability strategy

Source: AngloGold Ashanti (2017a)

Colour may also be used as a navigational tool or to reinforce connections as illustrated by Figure 4.8 and Figure 4.9. Figure 4.8 introduces the company sustainability framework and uses an infographic to ‘untangle’ the connections between the SDGs, the ‘six capitals’, and the three ‘P’s (people, planet, profit) of the ‘triple bottom line’ framework for sustainability. The company framework associates each element of the three ‘P’s, and its associated SDGs and capitals, with a distinctive colour. For example, the colour pink is associated with the ‘People’ theme. This extends the theme, and reinforces the connections, first introduced in the company 2017 Corporate Responsibility report that used pink text and icons when communicating on aspects of the ‘People’ category of the sustainability framework. Examples of these icons are shown in Figure 4.9



Figure 4.8: Example of a visual illustrating an integrated company sustainability framework using colour and icons
Source: Investec (2018)



Figure 4.9: Pink icons related to employee remuneration, learning, and well-being that reinforce connections to the People category of the company’s sustainability framework
Source: Adapted from Investec (2017)

Figure 4.10 below shows the use of a visual metaphor, three interlinked cogs, that illustrates how the SDGs are integrated into the company's operations. The different sized cogs symbolise the scale of the opportunity for different operations, while the gear-like mechanism and suggestion of motion indicates that action on the SDGs is interconnected throughout the organisation.

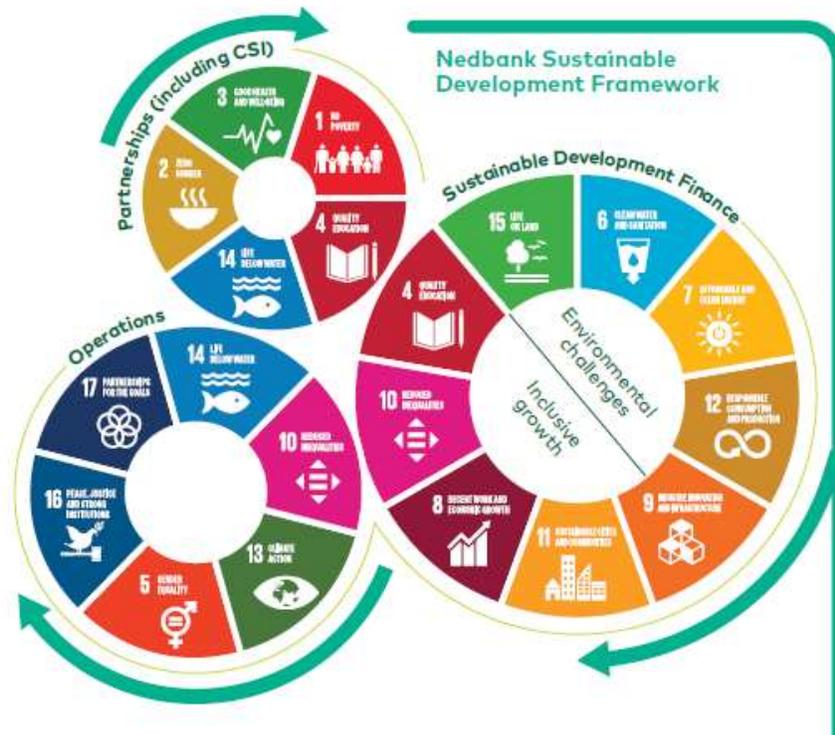


Figure 4.10: Example of a visual metaphor to show how the SDGs are incorporated into the company strategic framework
Source: Nedbank (2017)

Figure 4.11 and Figure 4.12 are two examples from the same company report. In these examples, icons function as navigational and connective tools. The chapter icon, introduced in the report's contents page, is repeated in the right-hand corner of each page, while the relevant SDG icon links the Global Goals to the company's activities. Each focus area of the sustainability framework is also associated with a specific colour, such as purple for the theme of 'inclusive economic growth' and blue for 'education, learning, and development'. The figures also highlight how visuals may be used to contextualise and simplify information. For example, illustrations and photographs of vehicles provide the background to a discussion on the company's activities related to providing sustainable transport solutions. Data visualisations, combined with simple illustrations, simplify the presentation of information related to the company's educational development activities.

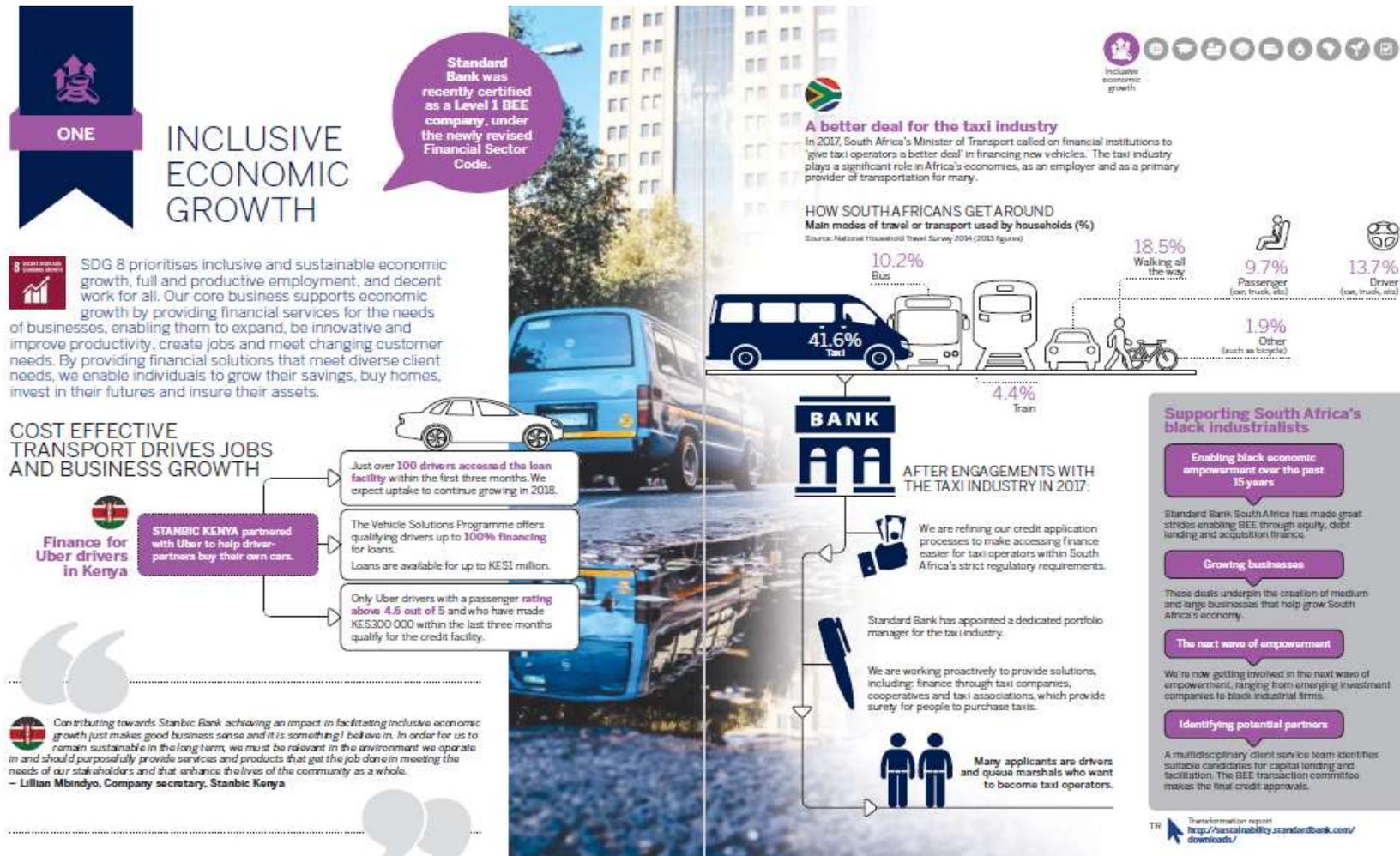


Figure 4.11: Example of how visuals and colour in sustainability reporting assist to connect and contextualise information
Source: Standard Bank (2017)



Figure 4.12: Example of how visuals and colour in sustainability reporting assist to connect and simplify information
Source: Standard Bank (2017)

4.4 Exploring the role of visuals in sensemaking and sensegiving of the SDGs

In this section, I explore the research findings related to my third research objective that aims to explore how sustainability practitioners in South Africa are using visuals to contribute to sensemaking and sensegiving processes, and how this may be applied to the SDGs.

First, in section 4.4.1, I discuss why business engagement with the SDGs may trigger the sensemaking/sensegiving process for sustainability practitioners. Then, in sections 4.4.2 to 4.4.6, I explore how sustainability practitioners may use visuals to support sensemaking and sensegiving. I conclude this section with a discussion on how visuals may constrain processes of sensemaking/sensegiving.

4.4.1 Why the SDGs may trigger sensemaking and sensegiving

My findings suggest that sensemaking/sensegiving may be triggered by the multiple possible interpretations and responses to the SDGs that result in practitioners feeling uncertain and confused. The novel expectations of business' contribution to the sustainability agenda, which may challenge organisational identity, may also trigger sensemaking/sensegiving. Finally, sensemaking/sensegiving may be triggered as sustainability practitioners are required to co-create a coherent framework for interpreting the SDGs, as well as explain, justify, and convince other stakeholders of their developing understanding.

The multiple interpretations and possible responses to the integrated sustainability challenges that the SDGs aim to address may trigger sensemaking/sensegiving for sustainability practitioners. Sustainability itself is a multi-faceted concept as captured by Respondent C5:

I think sustainability for some people is like... is it cuddling dogs? Is it looking after the whales? I think people have a limited understanding of what it is. Is it just recycling glass, plastic, paper, and wet waste? Sustainability isn't just safety [or] a healthy environment anymore.

Although the SDGs aim to provide an interconnected framework for responding to various sustainability challenges, they may still leave sustainability practitioners confused and overwhelmed. Reasons that “*companies are confused*” [Respondent C3] include the challenges related to the number of goals and targets and the need to translate the SDGs from a sovereign to a business level. These challenges were discussed in detail in section 4.2.4.

The novel expectations for the role of business compounds the potentially confusing and uncertain interpretation of the SDG framework and may trigger sensemaking/sensegiving for sustainability practitioners. Although business has long been a stakeholder in the global sustainability dialogue, businesses are now expected to drive efforts for achieving the SDGs. Indeed, according to Respondent C14, their company is experiencing increased pressure to respond to the sustainability agenda: “*I don’t think we’ve ever been challenged as coherently on all [sustainability] fronts before...at the same time, and you must come up with a response that integrates and deals with all of these*”.

Sustainability practitioners, and their teams, must often consider new ways of integrating sustainability into company strategy, that may, in turn, result in the company having to “reimagine its role in society” [Respondent C2.1]:

I would argue that as an institution of society, [business] has to reimagine itself...yes of course it needs to be profitable, in the absence of profits... it ceases to exist, it ceases to contribute. But if the enterprise sees itself in a way that is just limited to maximising profits for shareholders, it loses sight of what I believe is its primary purpose...to contribute to the positive development and evolution of that society within which it exists and with which it is intimately interrelated in a mutually dependant way.

[Respondent C2.1]

This “*changing world, with [its] changing dynamics, and the changing expectations [of] the enterprise and its role in society*” [Respondent C2.1] may subsequently challenge business identity.

Lastly, sustainability practitioners must also co-create and share their interpretation of the SDGs with stakeholders from both within and outside of their company. As described by different respondents, this process may involve small teams, large multi-disciplinary, multi-day sessions, or even partnerships with external consultants.

Once a strategy has been crafted, and support garnered from within the business, sustainability practitioners must ensure that this strategy is also communicated to external stakeholders. However, the process of explaining and justifying strategy externally may be challenging. For example, Respondent C3 describes the challenge in maintaining stakeholders' interest in sustainability reporting: “*One thing that people will tell you when they open a sustainability report [is] ‘ah its boring’*”.

4.4.2 An overview: How sustainability practitioners use visuals in support of sensemaking/sensegiving

Having established why engaging with the SDGs may trigger sensemaking/sensegiving for sustainability practitioners, I now explore how sustainability practitioners may be using visuals - intentionally and sometimes unintentionally - in support of these processes. The following sections are structured according to four sensemaking/sensegiving processes - scanning, interpreting, explaining, and influencing - shown in Figure 4.13. I inductively identified these four categories as representative of key activities that form part of sensemaking and sensegiving. I consider processes of scanning and interpreting to form part of sensemaking, while I associate activities of explaining and influencing with sensegiving. Overall, I identified 12 activities that could be categorised as supporting scanning, interpreting, explaining, or influencing.

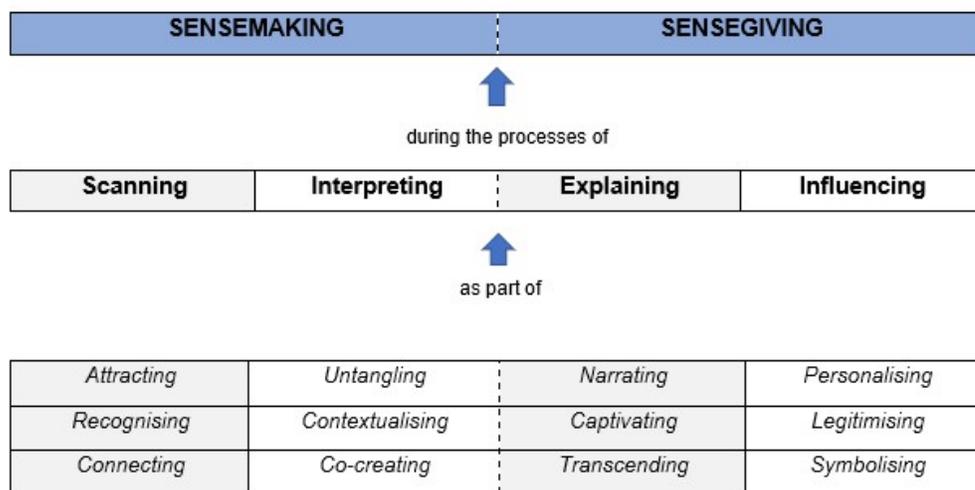


Figure 4.13: How visuals may support the four key sensemaking/sensegiving activities of scanning, interpreting, explaining, and influencing
Source: Author

In each section below, I explore the activities that I found visuals may support as part of scanning, interpreting, explaining, and influencing. For example, in the next section I discuss how visuals support processes of scanning by attracting attention and assisting us in recognising and connecting information.

It is worth noting that although this discussion focuses on four discrete categories, the processes of sensemaking and sensegiving are non-linear and inter-related. As the development of meaning and understanding is often negotiated, contested, and co-created (Gioia & Chittipeddi 1991; Weick, Sutcliffe & Obstfeld 2005; Maitlis & Christianson 2014), the boundary between interpreting and explaining appears to be especially blurred. I have used a dashed line in Figure 4.13 to highlight the permeability of this boundary, and indeed the boundary between the overall processes of sensemaking and sensegiving.

4.4.3 How visuals support processes of scanning

I now discuss how visuals may support the process of scanning, by *attracting* attention and facilitating the activities of *recognising* and *connecting* information.

Visuals may be used to attract attention. Indeed, almost all the sustainability practitioners that I interviewed reflected on how visuals were more attractive than text and could ‘pique the interest’ of a viewer or reader. As described by Respondent C2.2: “[Visuals are] *something that’s engaging... that draws the audience in.*” Respondent C6 considered the SDG iconography as an example of this ‘attractive’ quality of visuals: “*When you look at the SDGs, if you google it what is the first thing that you see? You either see the rectangular one or you see the beautiful circle, with all the colours, and immediately the colours attract you*”.

Many of the practitioners linked visual attractiveness with the use of colour. As, according to Respondent C10: “*The world’s not black and white, so if we are making [visuals] black and white, you’re not really attracted to it...it needs to stand out*”.

Overall, interviewees provided examples of how photographs [Respondents C6 and C7], cartoons [Respondent C1], moving images [Respondents C1 and C3], and infographics [Respondents C10 and C15] may be used to capture the viewer’s attention and facilitate a deeper engagement with the presented information.

One respondent described how, after becoming aware “*that our sustainability reports were only being read by other sustainability people*” [Respondent C15], they used visuals to attract attention and generate increased engagement with their reports: “*We thought about what will entice [people] to read this?...then we said we want a lot more infographics... So, making it visual [was about] understanding that people don't read from cover to cover anymore...it was a specific purpose to make it more visually appealing*” [Respondent C15].

Another respondent provided one of the few examples of the use of 3D media, where their company used a sculpture to generate interest in a social media awareness campaign:

We had a sculpture of this face, and everyone walked past this sculpture and it was in a glass box and we're like 'who's this? Who's this face?' and a week later we got a video: 'your social media behaviour'. And you started looking at [the face] and each and every thing that you post on the web [was] making a layer of that sculpture...you could see Facebook icons, you [could] see Twitter icons...it was an interesting way to communicate, it was something different, it wasn't just, 'oh, I need to do this survey again.'

[Respondent C8]

Another interesting finding related to how attractive visuals could be used to engage with a “*millennial, iPad, iPhone generation*” [Respondent C15]. As described by Respondent C15, visuals are “*able to cut through [the] noise*” of a constant bombardment of information via social media platforms such as Twitter.

In Respondent C8's experience, younger generations are not only more visually inclined, but also increasingly concerned with issues of sustainability and the role of business in responding to these challenges: “*We see it with our employees, the younger generation coming in, they want to see visuals. Funny enough, it's not just visuals, they're very, very, interested in the SDGs*”. As this contingency of mobilised youth enter the workplace, traditional ways of reporting are expected to change even more. Respondent C1 predicts that “*in the future you'll probably find traditional corporates being a bit more disco and radical in moving towards different ways to visualise, because they understand that their audience will want a different way to visualise.*”

However, while many of the interviewees were aware of the popular narrative that younger generations are more interested in sustainable development, some were yet to see the effects within their own companies and remained unsure whether the trend of a younger generation that ‘cares more about sustainability’ was relevant to South Africa.

Visuals also support the process of scanning by influencing our ability to recognise cues and extract relevant information from our environment. For example, consider the relationship between a warning sign and a universal message of danger as described by Respondent C9: *“Things like a warning sign for voltage...that’s a symbol for danger, and everywhere in the world [that] you go, it’s the same symbol... there’s no question about it”*.

Although possibly not as universally recognisable as a warning sign, the SDG iconography is becoming increasingly familiar. According to Respondent C9: *“Now when you [think about the] SDGs, you think about the visual, because that’s how it’s embedded”*. It is possible that as our recognition of the SDG iconography improves, we will grow to immediately associate these visuals, including their distinctive use of colour, with sustainability information. According to Respondent C11, they may even have the potential to *“take on the importance of a flag”*.

Our recognition of the illustrations and symbols used for the individual SDG icons may also guide our understanding of the overall objectives of each goal. For example, consider the icon for SDG 14 (life below water) shown in Figure 4.14 below.



Figure 4.14: SDG 14 - Life below water
Source: UN (2016)

According to Respondent C8, the illustration and colour, and therefore the theme of the goal, is immediately recognisable: *“I mean for me, I can know that water is blue for instance...water is blue...life below water has got a fish on [it]”*.

Icons, and other visual symbols, not only support our ability to notice, bracket, and extract information, but when used repeatedly, they may also provide a visual guide that connects dispersed pieces of information. According to Respondent C11: *“The power of pictures is that the icons stay the same, and the colours stay the same, and there’s some kind of consistency, so that when you see it you recognise it and you know what we’re talking about”*.

Section 4.3 first introduced the use of visuals or colours as a navigational tool to categorise and reinforce connections between sections of information. Figure 4.15 provides a detailed example of this from the 2017 Standard Bank Report to Society. The report uses a symbol of an electrical plug sprouting leaves against a green background to create a visual code that connects information relating to climate change and environmental sustainability. The use of green also allows the company to create a simple link between their actions under this theme and SDG 13 (climate action). Interestingly, the visual of an electrical plug sprouting leaves was used in relation to SDG 7 in the SDG urban art installation described in Chapter 1 (Figure 1.4).



Figure 4.15: Example of a visual connection linking information related to environmental sustainability and climate change throughout a report
 Source: Standard Bank (2017)

4.4.4 How visuals support processes of interpreting

Visuals may also assist in the interpretation of information. As illustrated in Figure 4.13 visuals may support the *untangling* and *contextualising* of information and aid the process of *co-creating* meaning. I discuss these findings below.

Practitioners may use visuals to untangle interconnected or 'complex' topics such as sustainability. The survey response from Company 23 stated that: "*Visuals are a succinct and concise way to communicate sustainability challenges in light of the interconnectedness and complexity of the challenges*". Visuals may therefore be useful in explaining the SDGs, whose interconnectedness may still prove challenging to understand. Indeed, an ongoing project by the Stockholm Environmental Institute (2018) aims to create a 'visual language' for how the SDGs interact.

According to Respondent C6, the WEF (2018) *Risks-Trends Interconnections Map* (shown in Figure 4.16) is an 'excellent' example of how visuals can be used to untangle and explain interconnectedness. The respondent explained how the use of different colours for different risks, coupled with a diamond icon whose size indicates the size of the risk "*is a brilliant example of how you can use visuals to tell the story*". Importantly, the respondent highlighted how the connections between the different risks is concisely and simply presented in a visual network that may 'take many pages' to explain in words.

Companies may also use visuals, particularly infographics, to explain interconnected aspects of their operations, such as the example of the AngloGold Ashanti Mponeng mine water usage cycle shown in Figure 4.17.

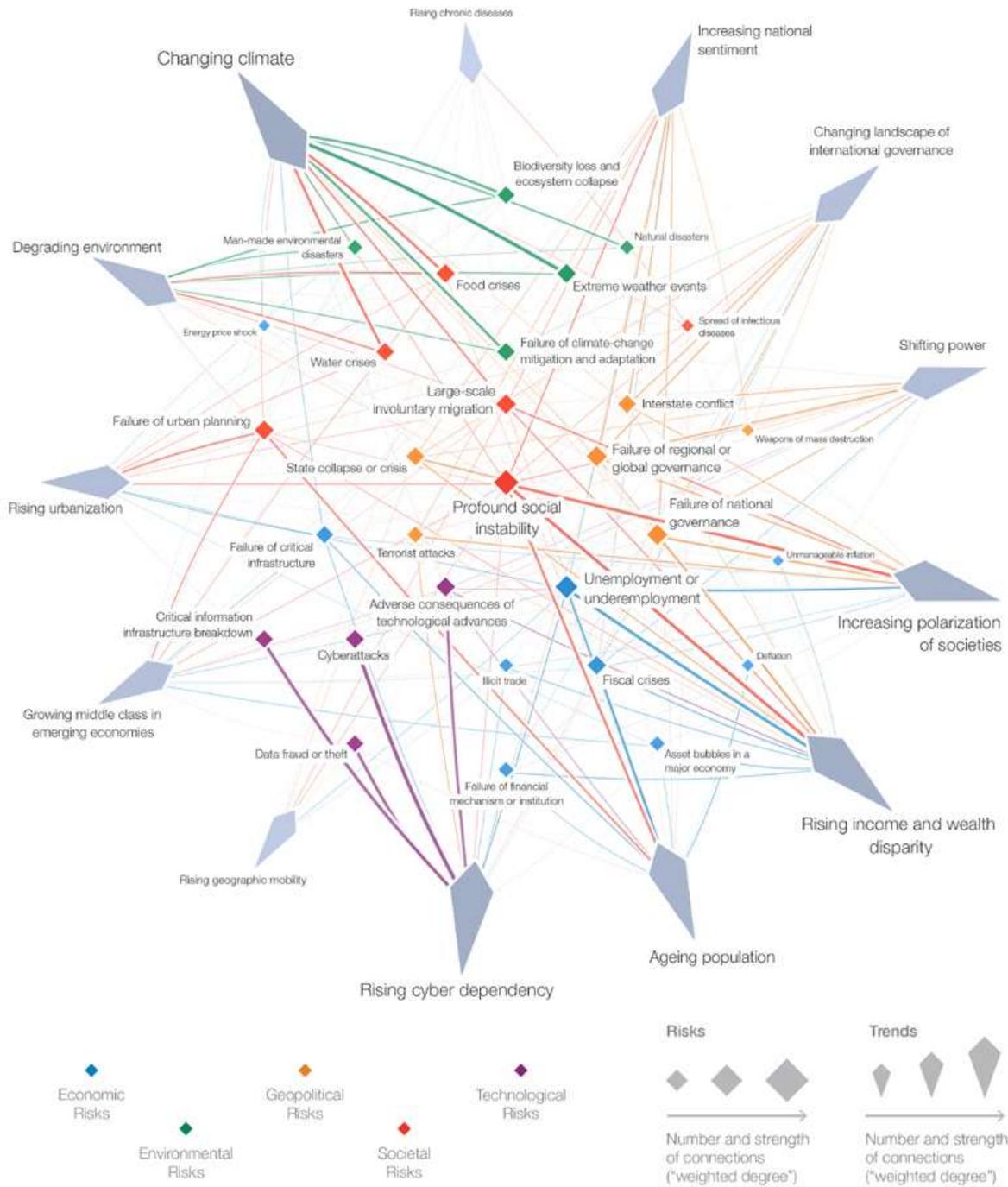


Figure 4.16: WEF Risks-Trends Interconnections Map as an example of the use of visuals to untangle interconnectedness.

Source: WEF (2018)

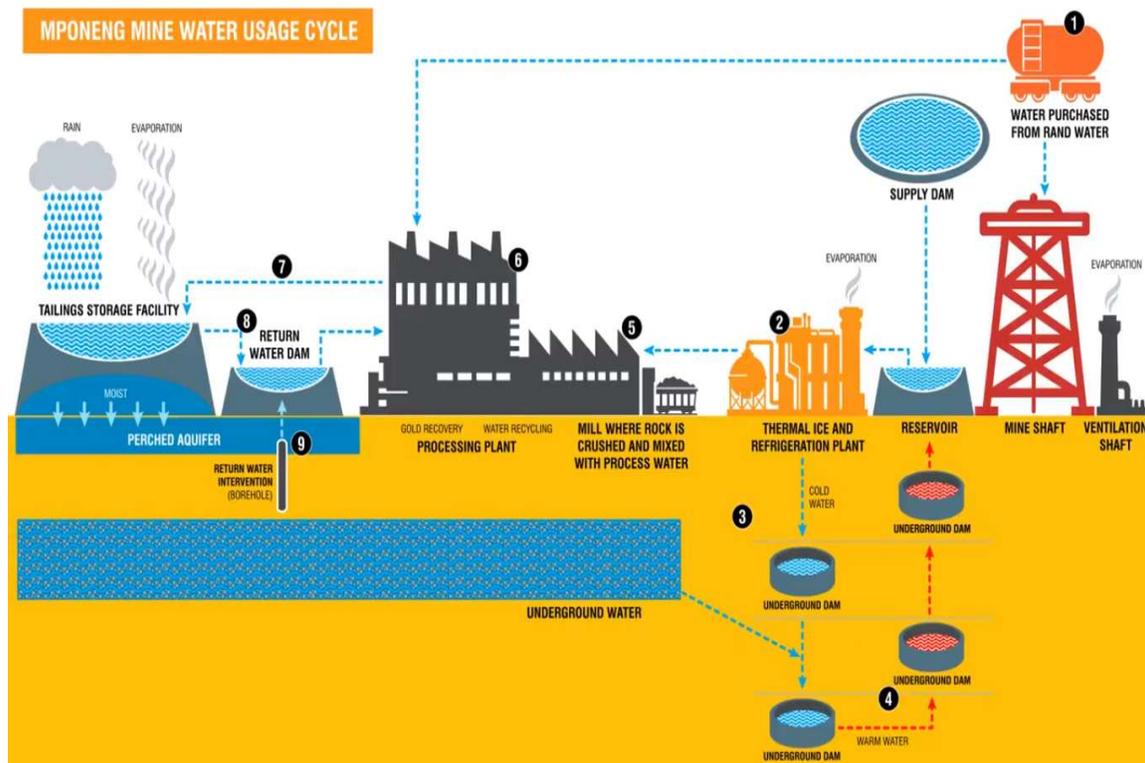


Figure 4.17: Infographic showing the mine water usage cycle of the AngloGold Ashanti Mponeng mine
 Source: AngloGold Ashanti (2017b)

The second way that visuals support the process of interpreting information is by contextualising information. One respondent provided an example of how a photograph provided context for understanding the consequences of unsustainable development, and particularly, the effects of plastic waste in the world’s oceans:

I saw a picture of an albatross that had died, that they picked up in the ocean somewhere, and they opened up its stomach and the whole albatross’ stomach was filled with junk and plastic that it had thought was food or fish or something [and it ended up] swallowing it, and it basically starved because its stomach was crammed full of junk. When I saw that, I realised our waste and our junk [that] we throw away is just killing the environment, just through that one picture.

[Respondent C5]

According to Respondent C13, visuals are critical for contextualising some of the challenges, such as irresponsible production and consumption (SDG 12), that the SDGs aim to address. They contrasted the efficacy of verbally describing the scale, and environmental damage, of cobalt mining for use in the manufacture of cell phones, with *“showing them a picture of an enormous hole in the ground with little trucks that look like ants”*. They reflected that the visual would provide a greater understanding of the environmental consequences of cobalt mining by reconnecting people *“sitting in a nice big office”* with the scale of the challenge.

Finally, the interviewees also described the use of visuals in the negotiation or co-creation of meaning. In the example below, Respondent C14 describes the process of developing a strategic response to the SDGs for their company and how during this process, the team used a visual matrix and objects such as Post-it notes and a whiteboard to aid their interpretation: *“I managed to get a white board on wheels... and we used a two by two matrix...[and] through this whole creative design process you then start using ‘Post-its’ [on this matrix] around what the current situation is, where it could move to, what’s the stressor, why’s it going to move”*. The goal of this collaborative process was to develop a sustainability strategy, inclusive of the SDGs, that the whole organisation may support: *“I want a refrain that says, ‘I am [Company 14’s] sustainability guru and champion’, and I want everybody to be able to say that, and I want them to identify with what it means, I want them to know what that looks like”* [Respondent C14].

Company 11, as part of a collective of companies, also used visual materials to aid understanding during the co-creation of a strategic response to the SDGs for their sector. As Respondent C11 reflected: *“The visuals really helped... it helped a lot in clarifying our thought process, and I don’t know how we would have done it without the visuals to overlay all the companies”*.

Figure 4.18 provides a fictional example of how a company may use a visual matrix to assist in their development of a strategic response to the SDGs. The visual mapping of themes on the matrix facilitates the identification of focus areas that are important to the company’s stakeholders and that are also well-aligned with the objectives of the SDGs.

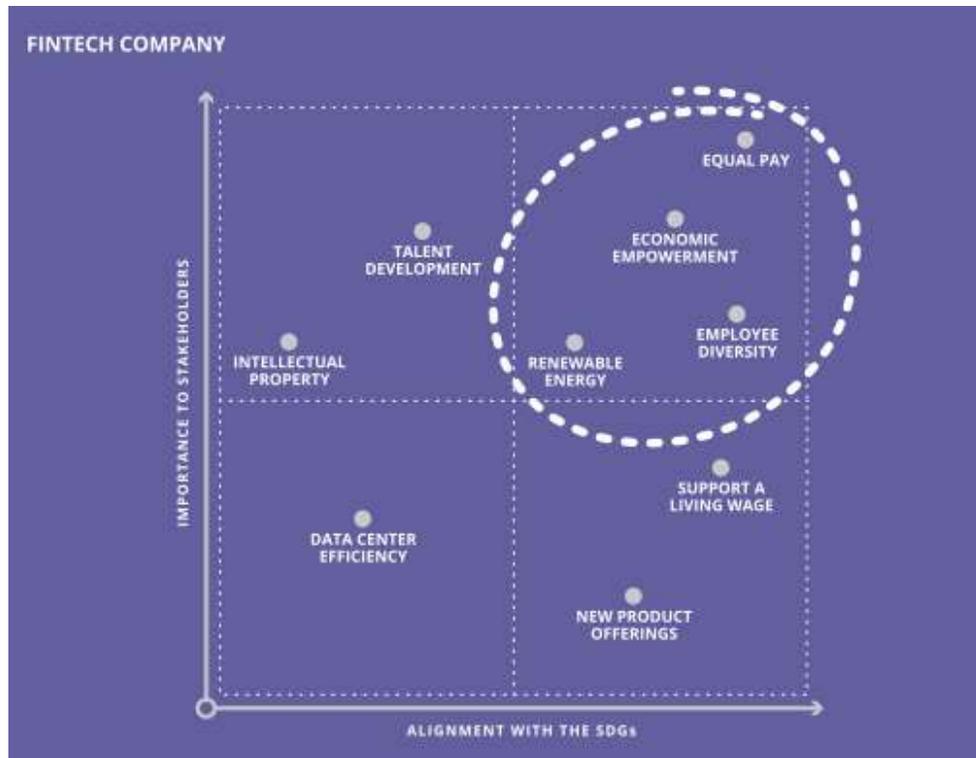


Figure 4.18: Fictional example of a matrix used to develop a strategic response to the SDGs
Source: SVCF (2017)

The interviews in this study yielded further examples of the use of visuals in co-creating and negotiating meaning. For example, Respondent C14 described their use of hand-drawn visuals as a way of engaging management on sustainability topics, while Respondent C12 described how their management often makes use of visuals to guide discussion in team strategy sessions. These examples highlight how the development of meaning and transfer of information is often supported by visual artefacts.

Interestingly, further evidence of the use of visuals in co-creating meaning and understanding comes from my own experiences in conducting the interviews for my research. During most of the interviews, the interviewees would either draw rough sketches on pieces of paper to illustrate their experiences, or page through company reports while highlighting the icons, graphs, and infographics inside as they guided me through their company's engagement with the SDGs. I did not feel as if I was only a passive recipient of these visuals, but rather, that through my questions and discussion, I was actively co-creating the narrative of the interview.

For example, my questions guided what visuals the respondents showed to me, and as I probed the reasons for their use, we co-created an understanding of whether the visual was used to simplify, contextualise, or connect pieces of information. In some instances, the interview questions led the respondent to reconsider their initial perceptions on why visuals were used in company reports, and in other interviews, both myself and the respondent drew visuals - often adding and embellishing on the same drawing - to explain our emerging insights from the interview. In this way, with the visual acting as a bridging device, or boundary object, we co-constructed meaning and understanding.

4.4.5 How visuals support processes of explaining

Developing meaning and understanding also requires that we share our interpretations with others. In this section I describe the findings related to how visuals support the process of explaining. Although I have linked the activities of *narrating*, *captivating*, and *transcending* to sensegiving, the processes of interpreting - considered as part of sensemaking in section 4.4.4 - and explaining are intimately connected and highlight the interconnectedness of sensemaking and sensegiving. This is highlighted by a dashed line between interpreting and explaining in Figure 4.13.

First, visuals may be used independently, or combined with words or audio, to create a narrative that transfers and explains information. Although we may often consider storytelling as a way of sharing information with children, stories in visual format may be as applicable for sharing sustainability messages with adult audiences. Respondent C11 described how a visual narrative was used to explain the potential consequences of population growth in the Global South:

We had a presentation the other day, and [the presenter] had a visual which showed population growth...and what was really useful was showing Sub-Saharan Africa, and the Nigerian population, and what they anticipate it to be, juxtaposed on the American population...and what that actually means. I mean, you could hear the room was like, 'ahh, okay, flip, how do we find jobs for these people?'

Indeed, the use of visuals, in the form of video, infographics, or photographs, to tell a story, was mentioned by 15 of the 18 interviewees. For Respondent C3, the value of visuals is that they provide a way of telling these stories in a way that includes even the illiterate: *"For us [the use of visuals] was...the easiest way to tell our story for someone who cannot even read, but who understands that when I look at this picture, this is what it means".*

For Respondents C8 and C15, visuals are useful for creating a narrative that is more compelling than one based on text alone. Both interviewees reflected that a text-based narrative may be perceived as 'boring' and is then *"a report, not a story"* [Respondent C15].

The second way that visuals support the explanation of information is by captivating, or holding, the attention of the audience. According to Respondent C6: *"I realised that if you don't use visuals, it's just going to be a lot of words, and generally... you lose your audience immediately when you [just] use words"*. The example of Respondent C7's own response to text-based presentations appears to support this view: *"I hate seeing slides that are packed with data. I just fall asleep...if you are giving me a graphic with two points and you are talking to that, I'm going to pay attention because I want to know what this is about"*. However, it is worth heeding the caution that *"we are not all at the stage where you are able to look at a visual and you know what it's about"* [Respondent C17], and therefore sensitivity is required in responding to an audience's different communication preferences.

The ability of visuals to hold our attention may be a result of the way visual information is often summarised and therefore able to deliver a faster explanation. As expressed by Respondent C1: *"The reality is people have limited time and reading a whole chunk of text, you know, eyes glaze over... visuals are quick, they're punchy"*. In addition, the availability of data has also changed the way in which people expect to consume data. According to Respondent C2.2, people now consume information in a more immediate way, and *"the days of sitting down and reading a white paper"* are limited. They explained: *"We're used to something that's instant...instant gratification is something that motivates us in the time that we live in."* Our modern lifestyles have therefore prompted the use of alternative technologies and alternative forms of learning.

For sustainability practitioners, an awareness of the need to summarise and present information in an engaging format extends to their approach to sustainability reporting as described by Respondent C17:

Reading a sustainability report that's about 70 pages long can be quite tedious especially considering how many other reports people have to read. So, if there's an infographic that can summarise a message without you having to go through three pages of explanation, I think that's best.

Lastly, visuals may support explanation by extending information to a wider audience. The use of visuals to increase the accessibility of information was a common theme throughout the interviews. Visuals were considered a ‘universal language’, able to transcend geographical, language, or educational barriers. As expressed by Respondent C3: *“If I can create a report based on images, I can take it to Japan or China, somebody will have an idea of what I’m trying to say”*.

This ‘universality’ of visuals is also applicable to the SDG iconography that *“is immediately understandable in any language, in any culture”* [Respondent C5], and transcends literacy barriers. This concept is perhaps best expressed by Respondent C3:

For me [the SDG icons] are a universal language...in a way that you don’t need to explain it to a rural mother somewhere in Limpopo or in Mpumalanga... you press them on a wall, at a public screening, at a public school, somebody should be able to look at them and understand what they are trying to say.

However, as with other forms of communication, there is still a need to remain aware that visuals may be open to interpretation. For example, Respondent C11 reflected on whether the possible religious interpretation of the initial icon for SDG 10 (reduced inequalities) was the reason why the icon was subsequently changed: *“The equality one changed...now it’s got an equal sign and it’s got arrows around it...I think before it was a circle [and it] looked a little bit like a crescent, and I wonder if there wasn’t, for some people, some kind of religious connotation to that one.”* The previous and current icons for SDG 10 are shown in Figure 4.19.



Figure 4.19: Previous and existing icons for SDG 10 (reduced inequalities)
Source: GRI, UNGC and WBCSD (2015) and UN (2016)

4.4.6 How visuals support processes of influencing

In this section, I consider the study findings related to how visuals may support influencing by *personalising* information, creating a sense of authenticity or *legitimacy* for the audience, and by *symbolising* additional meaning.

One way of influencing the sensemaking process of others may be through the use of visuals to personalise a message and therefore create an emotional engagement in the viewer: *“Visuals create empathy, emotional engagement, emotional responses...and that is something that you will remember”* [Respondent C5].

In contrast to the use of colour for attracting attention, interviewees expressed the view that black and white photographs are more likely to create an emotional response in the viewer. Respondent C8 offered the explanation that this is because a black and white image removes all distraction apart from the focus on the subject of the photograph: *“If you put pictures or video in black and white... you take everything away and you just focus on the emotion...just because you’re taking away everything that can distract from that image and you’re just focusing on the subject.”*

As mentioned in section 4.3, the interviewees often referred to videos when discussing the role of visuals in generating an emotional response. This feeling of *“mushiness of some sort”* [Respondent C17] was attributed to how a video personalises its message by allowing the viewer to feel as if they are a part of the story. Photographs, such as the image of the starved albatross filled with plastic, are also capable of rousing emotions. Although, as Respondent C7 reminds us, the emotion may not always be positive:

You [can] put [up] really sad pictures of how people are abused or taken advantage of ...they can also evoke a negative emotion, not necessarily a positive reaction. You can appeal to somebody’s heartstrings or you can just irritate the dickens out of them, because the world’s so full of negativity anyway.

Notably, respondents often connected visuals with the ‘emotive’ issue of sustainability. This relationship between visuals and sustainability, as a “connection of the soul” [Respondents C2.1, C5, and C14] was expressed across interviews, such as in this reference to sustainable development by Respondent C2.1: *“I think the main thing about sustainable development is, particularly with your generation, it connects with [your] soul”* and Respondent C5’s reflection that *“visuals go directly to the emotion part and the soul part of the person”*.

The reflection by Respondent C14 below captures the potential role of visuals in personalising the sustainability agenda:

The minute you mention sustainability, everybody's got their own, internal, very, very, visceral response to sustainability, from your Birkenstock-clad eco-warrior, all the way through to your corporate, pin-striped, umbrella wielding, canary wolf banker. And what's interesting for me, is for some reason, people's response to sustainability is very genuine. ... I love what you're asking [about visuals], just to maybe stimulate people's very visceral reaction again. If I think people connect sustainability with what's in their heart, [then let's] use visuals to try and stimulate the conversation, rather than flat 2D text.

Visuals may also influence the viewer by creating a sense of authenticity or legitimacy for the audience. According to Respondent C3, this is important when sharing information on a company's sustainability activities: *"If I read a report and I see what the company is doing...in visuals, you are able to build trust in what they are telling you. If they just keep on writing and writing and there's no visuals, sometimes you say, 'it's just a story that they are telling'"*.

Video in particular was highlighted as a medium to convey an authentic voice that is more convincing than text. Respondent C2.2 described how a video allows the viewer *"to experience [another] person's emotion"*. This affective influence of video is based on its ability to convey facial expressions, vocal quality, and background noises that *"influence how you experience what is happening there"* [Respondent C2.2]. According to Respondent C2.2, their company's use of video *"provided a sense of authenticity"* to their sustainability initiatives as stakeholders were able to directly express their views and experiences of the project: *"Video also provided us, for the first time, an opportunity to present the voices of stakeholders in a different way... it's not us saying what we're doing in communities, but that it's the community speaking of the difference that it's made in their life"*.

Visuals may also be used symbolically to either directly or indirectly add emphasis and nuance to an explanation. Several of the sustainability practitioners mentioned the use of visuals in their communications to convey information about their company's heritage, interests, and values. For example, one respondent explained how the photographs in the company sustainability report are used *"to convey that we as a company care about the communities"* [Respondent C16].

Another respondent reflected on how the photographs in their company report conveyed their company's African heritage: *"We're not just a South African company, that Integrated Report is supposed to be Pan African... the use of different photographs [in the report] is to reflect that, as an institution, it's not just one country that we're working in"* [Respondent C1].

Colours may also be used to reinforce a specific interpretation. For example, Respondent C5 selected a colour palette for their company's sustainability report that would convey a modern image of the company: *"I used a front cover... with those yellow colours and symbols to connect with younger people, and to make [Company C5] look more modern"*.

In contrast to supporting a specific interpretation, colours may also be used to challenge existing perceptions and create an alternative narrative for the audience:

In the previous company I worked for...the corporate colours were orange and yellow...and we had a photographer who would then come in and take photos, and you would think that a steel plant is a ugly thing, but I promise you, you have never seen the photos that he took, especially in the evening when the lights are on and you got that rich orange and yellow...we used those photographs extensively.

[Respondent C6]

4.4.7 How visuals may constrain processes of sensemaking and sensegiving

In the exploration of how visuals may support sensemaking and sensegiving, particularly in the discussion on the processes of interpreting and explaining, sustainability practitioners alluded to the ability of visuals to simplify information. Following this thinking, I now consider how visuals may constrain or impede the processes of sensemaking and sensegiving, such as when visuals are *over complicated*, *over simplified*, *distracting*, or *non-deliberate* in their use.

A visual may be *over complicated* when the audience is unable to intuitively grasp its meaning or intent. Indeed, visuals may *"be as obscure as words can be"* [Respondent C2.2] and prevent an immediate response in the audience of *"wow, I see it and I get it"* [Respondent C10].

Therefore, according to Respondent C2.2, it is important to remain aware of your intended audience when developing a visual: *“I think translating complex concepts for people, is where I’ve had [the] most challenges...sometimes the complexity of our visuals overshadows the main communication message”*.

Visuals may also lead to the *over-simplification* of information. Many of the sustainability practitioners highlighted this risk in relation to the SDGs, and while acknowledging the utility of the simplicity of the icons, cautioned that the visuals alone did not convey all the details associated with the SDGs: *“There’s a lot of detail behind each and every goal... I think by simplifying the visual representation we also tend to miss the actual meaning of the goals”* [Respondent C17]. In Section 4.2.4, Respondent C17 described how the simplicity of the SDG icons resulted in their company misinterpreting the detailed objectives of each of the goals. Therefore, according to Respondent C2.2, additional information, in the form of text or the spoken word, may be required to *“reinforce, explain, or clarify”* the meaning or intention of a visual.

Visuals may also be *distracting*. According to Respondent C15: *“People do [visuals] that they think looks nice, but it actually detracts from what you’re trying to do”*. In contrast to the role of visuals in creating a sense of legitimacy, discussed in section 4.4.6, distracting visuals may even introduce an unintended cynicism in the audience when reading company reports: *“[Financial analysts] might even be cynical and say, ‘you’re putting pictures in there because you have something to hide, so now you want to make this [report] glossy and you want to distract me with [visuals], but actually, all I need to know is the content”* [Respondent C9]. Respondent C4 expressed a similar view that visuals in a ‘professional’ report may be seen as an attempt at ‘masking’ or hiding information.

However, perhaps there is a need to reconsider the legitimacy of visuals as part of corporate communication. Certainly, my review of company reports revealed that visuals are frequently used in a variety of mediums to communicate different objectives. As acknowledged by Respondent C14, visuals need not only mean pictures, and other visual categories such as data visualisations and videos may be well-suited for communicating on sustainability, and other, topics.

Finally, as expressed by Respondent C15, visuals should be used with intention: *“You can’t just drop a photo in or drop a picture in [a report], it’s got to have as much thought and consideration as the actual text and the numbers”*.

Indeed, the risk of visuals being misunderstood or perceived as distracting or misleading may primarily be related to their *non-deliberate* use. When visuals are used non-deliberately, they may also become 'too busy' [Respondent C2.2], appear superficial [Respondent C9], and reduce the clarity of the communication [Respondent C13], ultimately rendering them meaningless. According to Respondent C11: *"I think it's a wasted opportunity if you just use [pictures] for pictures sake and I think that there is a danger [that they] just mean absolutely nothing"*.

4.5 Summary and future thoughts on visuals and sustainability

In this final section of Chapter 4, I summarise my study findings and also reflect on the feedback from the interviewees on how their participation in the research may have influenced their opinions on visuals.

My findings in support of research objective 1 suggest that although there is a high level of awareness of the SDGs, many companies are yet to translate awareness into actionable strategy. However, almost all of the companies that participated in my research appear to now be embarking on this process, although the level of progress is varied. It remains unclear whether these findings reflect the broader trend of engagement with the SDGs in South Africa or are only reflective of the actions of the most engaged companies. My research identified that the SDGs may catalyse - through financial, legal, or ethical motivations - action on the SDGs, as well as frame business activities in support of sustainability by providing a common framework and language for action. Businesses that do respond to the SDGs may contribute financial and human resources, as well as specific organisational capability. However, there are challenges related to developing an understanding of the SDGs, making the SDGs meaningful for business, creating awareness and focus within the organisation, operationalising the goals, and integrating the SDGs into existing frameworks and strategies.

In relation to research objective 2, I found that most companies that responded to the survey used data visualisations, particularly infographics, in engaging with and communicating on the SDGs. In contrast, the use of moving images and 3D media was limited. As video has already been used for sustainability topics, it is anticipated that its use in relation to the SDGs will increase as engagement with the SDGs improves. However, 3D media is constrained by high costs, restricted accessibility, and a perception of illegitimacy for business communication.

Examples from company reports illustrated how icons, illustrations, photographs, and infographics are used in communication related to the SDGs. These visuals provided practical examples of the role of visuals in connecting, contextualising, untangling, and symbolising information.

In support of my third research objective, I found that the interconnected nature of the goals, the novel expectations of the role of business, and the conflicting demands from different stakeholders may trigger sensemaking and sensegiving for sustainability practitioners. I then identified 12 activities that visuals support as part of the four sensemaking/sensegiving processes of scanning, interpreting, explaining, and influencing. Visuals may support the process of scanning, by attracting attention and facilitating the activities of recognising and connecting information, while the untangling, contextualising, and co-creation of meaning aid interpretation. As part of sensegiving, visuals support explaining through narrating, captivating audiences, and transcending language and other barriers. Through personalising, legitimising, and symbolising, visuals may influence the sensemaking of others. The study findings highlighted the role of colour in attracting attention, while black and white photographs were considered to have an emotional influence on the viewer. The use of colour to both reinforce and challenge existing narratives was also highlighted. Visuals were seen to constrain sensemaking/sensegiving when they are over complicated, over simplified, distracting, or non-deliberate in their use.

When considering the reflections of the research participants, and the potential contribution of the research, Respondent C17 expressed that the research process facilitated a new way of thinking about visuals: *"We don't think about these things sometimes and I think going forward I'll probably even relook some of the infographics and visuals that we use in our reports... I never quite thought about visuals in this sense"*. For Respondent C12, their participation reinforced their view that *"visuals are actually quite a powerful tool for communication"* and increased their awareness of the use and application of visuals.

Some interviewees shared their interest in continuing or starting to incorporate visuals into their sustainability reporting: *"We definitely want to get rid of text and replace it with infographics and that's specifically to our [sustainability report]"* [Respondent C15]. Perhaps most interestingly, they also shared their reflections on the future use of new visual formats and alternative forms of communication that may include QR codes, art displays, and multi-sensory reports: *"Ideally in the future, you'll scratch [the page], and you can smell the coffee from the coffee entrepreneur that you helped... it must be multi-sensory"* [Respondent C15].

Chapter 5 - Conclusion and recommendations

5.1 Introduction

My research aimed to explore the role of visuals in sensemaking and sensegiving through a study of the engagement of companies in South Africa with the SDGs. The objectives of the study were to establish the current engagement of companies in South Africa with the SDGs, to identify what visuals companies are using in understanding and communicating on the SDGs, and to explore how sustainability practitioners may use visuals to contribute to the sensemaking and sensegiving of the SDGs.

In this chapter, I provide a summary of the key findings in support of my research objectives and connect these research findings with the literature. I present practical insights for sustainability practitioners and some recommendations for further scholarship. Finally, I provide some closing reflections on my research journey.

5.2 The engagement of companies in South Africa with the SDGs

In respect of my first research objective, the research findings suggest that there is a high level of awareness of the SDGs by companies in South Africa. The majority of sustainability practitioners that responded to the survey indicated that their company intended to develop initiatives, or was already in the process of implementing initiatives, that address the SDGs. These findings are similar to those of the PwC (2016b) survey on business engagement with the SDGs.

Progress on business engagement with the SDGs is varied. I found that the majority of companies were engaged in identifying the goals of most relevance to their business. Many frameworks recommend that sustainability practitioners first develop an understanding of the 'opportunities and responsibilities' that the SDGs represent for their business (GRI, UNGC & WBCSD 2015). Indeed, the research identified that sustainability practitioners recognise a need to consider how the SDGs may facilitate the identification of new opportunities as well as the improved management of existing operational risks. It is possible that such an approach may allow sustainability practitioners to identify 'unanticipated' ways of contributing to less immediately apparent goals and targets as encouraged by the GRI and UNGC (2017).

Few companies have progressed beyond identifying the goals of relevance to their business. Many companies are yet to assess the underlying targets, fully integrate the SDGs into business strategy, and develop quantitative metrics for measuring progress. Only two of the 17 companies I interviewed have started to develop targets and metrics for measuring progress towards objectives that support the SDGs. This is in line with previous study findings that highlight that engagement with the SDGs to date has been largely qualitative (PwC 2017). However, the development of quantitative metrics will become increasingly important if companies are to measure their progress in implementing strategy related to the SDGs. It is therefore critical that an established framework for measuring and reporting on the SDGs is developed (PwC 2017; KPMG 2018).

Though the urgency of the sustainability imperative cannot be overstated (Whiteman, Walker & Perego 2013; Ferraro, Etzion & Gehman 2015), it is promising that there are some signs of visible engagement with the SDGs by companies in South Africa, and according to PwC, (2016b) the number of companies engaging with the SDGs is expected to increase over the next five years. However, to increase confidence in business engagement with the SDGs, it will be important to establish whether these trends are reflective of only the most engaged companies, or whether similar patterns of engagement are observable in the broader business community. It is also important for engagement levels to accelerate over the coming months and for the development of plans to progress into implementation. This is especially important considering the significance of business “as a key stakeholder in the sustainable development conversation alongside government, civil society, and NGOs” (Murthy 2012:6).

5.2.1 Reasons for engagement with the SDGs

Based on my research findings, reasons for business engagement with the SDGs could be categorised as financial, legal, or moral. The majority of companies (12 out of 17) highlighted financial motivations for engaging with the SDGs. This is aligned with the common academic, and practitioner, framing of corporate sustainability as an economic opportunity (Dyllick & Hockerts 2002; Margolis & Walsh 2003; AlphaBeta 2017). Engaging with the SDGs may make business sense as a company may derive direct economic benefits, identify new business opportunities, or support the resilience of their operating context and therefore sustain their long-term ability to generate profits.

However, Hahn et al. (2014) highlight the potential tensions between corporate sustainability objectives and financial goals. Indeed, these tensions were described by the research participants who reflected on the challenge of confronting a prevailing, profit-focused business mindset and the view that sustainability initiatives may conflict with the generation of financial returns for shareholders. Therefore, Hahn et al. (2014) argue for a framing of corporate sustainability that extends beyond the 'business case'. Instead, they advocate for a framing that accepts the inherent tensions of the sustainability agenda and that aims to achieve positive economic, environmental, *and* social outcomes even when these may present as contradictory objectives (Hahn et al. 2014).

This discussion highlights the risks inherent to the duality of the UN *2030 Agenda for Sustainable Development*. While the Global Goals are often positioned as an economic opportunity for business (AlphaBeta 2017; BSDC 2017), the guiding principles of the SDGs may be seen to conflict with the neo-liberal business agenda (Milne & Gray 2013; Kumi, Arhin & Yeboah 2014; Pogge & Sengupta 2015; Scheyvens, Banks & Hughes 2016).

To effect change in this regard, it may be necessary to consider the underlying 'rules' that govern the relationship between business, society, and environment (Luke 2013; Hoffman & Ehrenfeld 2015). As expressed by Robinson (2012:183), "[n]ew conceptions of growth and well-being" may be required. Or, phrased differently, it may be necessary to facilitate a global shift from a disparate to a nested perspective of the relationship between business, society, and the environment (Marcus, Kurucz & Colbert 2010). As part of an interconnected social and environmental system (Agarwal, Gneiting & Mhlanga 2017), it may also be prudent, and expected, that business itself works towards its own reconceptualisation.

In terms of legal motivations, the majority of respondents referred to regulations related to B-BBEE in South Africa. This supports the findings by Bansal and Roth (2000) that legislation may often motivate companies to respond to the sustainability agenda. As described by Murthy (2012), the reference to B-BBEE highlights that companies operating in the Global South will often incur legislative pressure related to social rather than environmental themes. My research found that companies link activities in support of B-BBEE policies to goals such as SDG 5 (gender equality), SDG 8 (decent work and economic growth), SDG 10 (reduced inequalities), and SDG 11 (responsible production and consumption).

Importantly, the research findings also support the notion of a moral imperative for corporate sustainability. A third of interviewees reflected on the need for business engagement with the SDGs to extend beyond CSR, donations, and philanthropy, towards a model of strategic engagement and partnership in support of broader sustainability objectives. Supporting extant research, respondents also considered the contribution of business towards unsustainable development (Pogge & Sengupta 2015; Agarwal, Gneiting & Mhlanga 2017), and the interconnected relationship between business and its social and environmental context (Agarwal, Gneiting & Mhlanga 2017). This may be a reflection of the changing expectations of the role of business in the sustainability discourse (Hoffman & Ehrenfeld 2015; Scheyvens, Banks & Hughes 2016), and possibly, the reimagining of the role of business in society.

The SDGs may provide a common frame or language (GRI, UNGC & WBCSD 2015; SVCF 2017) required to initiate such dialogue on the role of business in society. My research identified that the SDGs may provide an internal framework for business activities in support of the sustainability agenda. For example, practitioners may propose sustainability activities that are framed within the objectives of the Global Goals. Externally to the company, the SDGs may act as a bridging device that facilitates dialogue on sustainability themes between diverse stakeholders.

5.2.2 How business may contribute to the SDGs

Respondents identified the provision of financial, organisational, and human resources as examples of how business may contribute to the sustainability agenda. It is particularly positive that there is an awareness and willingness to contribute financially towards the SDGs, given the significant investment that achieving the goals will require (Sachs 2012; Scheyvens, Banks & Hughes 2016).

My research identified several positive examples of business engagement with the SDGs that support the findings from broader global studies such as the BSDC (2017) *Better Business, Better World* report. Respondents shared some of their companies' activities that are being pursued in support of the goals, that will hopefully deliver positive outcomes post their implementation. Encouragingly, respondents spoke about collaboration - with governments, civil society, and other companies - as one of the key ways of delivering on the SDG agenda. This in itself supports the objectives of SDG 17 for increased stakeholder collaboration in support of a global sustainability agenda (UN General Assembly 2015).

Scheyvens, Banks, and Hughes (2016) have stated that business is particularly well-placed to contribute towards goals that target improvements in employment, infrastructure, economic productivity, and production and consumption practices. PwC's (2016b) finding that business in South Africa has overwhelmingly prioritised action on Goal 8 (decent work and economic growth) supports this perspective. Although not explicitly explored in this research, some respondents referenced the relationship between corporate sustainability and job creation.

However, there is also a concern that companies may only 'cherry pick' goals that easily translate to core business activities (PwC 2016a). While it may be prudent for companies to choose to adopt a sustainability strategy that aligns with business policies, competencies, resource availability, and culture (PwC 2016d), companies need also consider the interconnected nature of the goals and the links between the Global Goals and the overall resilience of their socio-ecological context. This 'interconnectedness' (UN General Assembly 2015), referenced by several of the respondents, may allow business to explore the relationship between their activities, and the risks, opportunities, and limitations across all of the 169 targets of the Global Goals (PwC 2017).

5.2.3 Challenges in engaging with the SDGs

Lastly, respondents reflected on the challenges of engaging with the SDGs. Respondents identified eight key challenges that span the engagement process from developing an understanding of the SDGs, making the SDGs meaningful for business, creating awareness and focus within the organisation, operationalising the goals, and integrating the SDGs into existing frameworks and strategies. The discussion that follows illustrates both the interpretative and practical challenges associated with business engagement with the SDGs.

Many of the practitioner guides provide support related to the challenges of understanding, selecting, and prioritising relevant goals to the business (GRI, UNGC & WBCSD 2015). However, my research suggests that much of the prioritisation to date has focused on the goal level as opposed to the target level. Companies may need to consider a broader understanding of the underlying targets to develop a comprehensive strategy in support of the SDGs and, ultimately, effect meaningful change. Indeed, one respondent reflected on how neglecting the underlying targets of SDG 1 (no poverty) resulted in a misalignment between business strategy and the objectives of the goal.

Respondents also identified challenges related to extending the reach and understanding of the SDGs beyond the sustainability professional or function. Although the broader corporate sustainability literature highlights difficulties related to organisational inertia (Shrivastava 1995; Crews 2010) and reconciling competing stakeholder demands (Hahn et al. 2014; Hahn et al. 2015), the SDG literature makes significantly less reference to challenges related to creating broader organisational awareness of the SDGs, confronting the prevailing business mindset, and partnering with different business functions.

Finally, respondents highlighted implementation challenges related to a lack of available metrics for measuring progress on SDG initiatives, and, in contrast, an excessive number of other sustainability and reporting frameworks. Paradoxically, there is no established framework for reporting on the SDGs (PwC 2017; KPMG 2018).

5.3 What visuals are companies in South Africa using in relation to the SDGs

My second research objective aimed to identify the visuals that companies in South Africa are using in understanding and communicating on the SDGs. Overall, I found that the data visualisation category, and infographics in particular, were most commonly used for engaging with and communicating on the SDGs. In contrast, 3D media and video were under-represented.

5.3.1 The utility of infographics

Sustainability practitioners emphasized the use of infographics in summarising information and attracting the attention of the viewer; characteristics that are also highlighted in the literature (Lankow, Ritchie & Crooks 2012; Smiciklas 2012; Otten, Cheng & Drewnowski 2015). The respondents also reflected on the storytelling nature of infographics (Otten, Cheng & Drewnowski 2015). For example, one respondent described the use of infographics to explain key insights from the 2015 Paris Agreement to their executive management.

I also provided examples of infographics, incorporating text and visual elements such as icons and illustrations, that have been used in company reports in relation to the SDGs and broader sustainability themes. While Lankow, Ritchie, and Crooks (2012) highlight the role of colour to attract the eye and increase recognition of aspects of the visual, my research findings also illustrated how colour could serve as a tool for connecting information.

The visual examples provided in Chapter 4 also highlighted the use of visual metaphor in an infographic. In the example, the visual metaphor of a cog was used to explain the integration of the SDGs into business strategy and operations. This provides an example of how metaphors may translate a complicated idea into a more understandable conceptualisation (Bell & Davison 2013; O'Neill et al. 2013; Jones et al. 2017).

5.3.2 The limited use of 3D media and video

In my study, there were two examples of the use of sculptures in communicating environmental and social messages. However, these were not used to directly communicate on the SDGs.

Literature on the use of 3D media by companies in relation to sustainability themes is limited. This may be a reflection that its use is still relatively uncommon, possibly as a consequence of the high cost of technology such as VR (Neiger 2016). However, it is reasonable to expect that the popularity of technologies such as VR may increase if the associated costs were to become more affordable for companies. Indeed, the research respondents indicated that in 'tight economic times', it was difficult to justify expenditure on VR or other 3D technologies. In addition to high costs, the sustainability practitioners also listed the restricted accessibility and perceived lack of legitimacy of 3D media in a business environment as constraints to their use. These aspects appear to be underexplored in the literature.

However, Meyer et al. (2013:509) note that "while photographs invoke the past by referring to the time in which the photographed object existed, 3D simulations materialize the future". As the pace of our interconnected world continues to increase (Hoek 2018; Rockström, Bai & DeVries 2018), and businesses are increasingly expected to reimagine their future, it may be worthwhile for companies to consider an increased use of 3D media for engaging with sustainability themes.

The limited use of video is perhaps more surprising than the lack of 3D material given the popularity of this medium (Limelight Networks 2017). Considering that the sustainability practitioners expressed the view that moving images are engaging, and that there are existing examples of the use of video in relation to sustainability themes that are available via company websites and reports, it is likely that the use of video in relation to the SDGs will increase as engagement with the SDGs progresses.

5.4 How visuals contribute to sensemaking and sensegiving

My third research objective aimed to establish the role of visuals in sensemaking and sensegiving practices. Considering the context established by my first and second research objectives, I explored the role of visuals in relation to the sensemaking/sensegiving of the SDGs by sustainability practitioners in companies in South Africa. This exploration relied on both their direct descriptions of the use of visuals in relation to the SDGs, as well as reflections on the characteristics of visuals that, in my view, may also be applicable to the sensemaking/sensegiving of the SDGs.

5.4.1 The SDGs as a trigger for sensemaking and sensegiving

The research findings indicate that the interconnected and equivocal presentation of the goals, the novel expectations of the role of business, and the involvement of multiple stakeholders who may hold divergent views are triggers for sensemaking and sensegiving.

According to the literature, the sensemaking/sensegiving cycle is often triggered by events that are confusing and may have multiple interpretations (Weick, Sutcliffe & Obstfeld 2005; Maitlis & Christianson 2014; Sandberg & Tsoukas 2015). In line with this, sustainability practitioners expressed how the SDGs, as part of the broader notion of corporate sustainability, were challenging to interpret and align to business objectives. In addition, respondents explained how the interconnectedness of the goals and targets served as an additional trigger for sensemaking, thereby supporting Cornelissen's (2012:118) definition of sensemaking as the "processes of meaning construction whereby people interpret events and issues within and outside of their organizations that are somehow surprising, complex, or confusing to them."

The findings suggest that the novel expectations of business in relation to the SDGs may challenge existing business identities. This is supported in the literature by Maitlis and Christianson (2014) who found that an event that challenges business identity will often trigger sensemaking/sensegiving.

Finally, the sustainability practitioners reflected on the challenge of developing and sharing their interpretation of the implications and opportunities of the SDGs with varied stakeholders both within and outside of their organisation. Not only is intersubjectivity a key characteristic of sensemaking (Maitlis & Christianson 2014), but the involvement of multiple, often competing, stakeholders is often a trigger for sensegiving (Maitlis & Lawrence 2007).

5.4.2 The role of visuals in sensemaking

The research findings indicate that visuals may contribute to the processes of scanning and interpreting during sensemaking, and the processes of explaining and influencing during sensegiving. These findings contribute to the organisational literature and our understanding of sensemaking/sensegiving. In particular, they provide insight into the role of visuals, alongside more commonly explored forms of communication during sensemaking and sensegiving. The four key activities that I identified may be used to guide future research that explores and contrasts the ways that written, verbal, and visual communication may support the processes of sensemaking and sensegiving,

Based on my study findings, the role of visuals in the processes of scanning, interpreting, explaining, and influencing are summarised in the rest of this section and continued in section 5.4.3.

During sensemaking, individuals first notice cues from their environment (Daft & Weick 1984; Maitlis & Christianson 2014). The attractive quality of visuals (Höllerer, Jancsary & Grafström 2018), and particularly colourful visuals, may pique the interest of the viewer, and facilitate further engagement with the information. Visuals are also more noticeable to a 'millennial, iPad, iPhone' generation that is constantly bombarded with information and that conducts many of their activities on visually engaging social media platforms.

Scanning also involves extracting, bracketing, and connecting relevant cues for further interpretation (Daft & Weick 1984; Maitlis & Christianson 2014; Sandberg & Tsoukas 2015). Here, visuals contribute by allowing us to recognise and bracket cues from our environment. As expressed by Meyer et al. (2013:508), visuals "are able to recall complex systems of knowledge through a minimal sign". For example, the symbolic illustration of a fish below the water's surface immediately allows us to recognise that SDG 14 is concerned with 'life below water'. All information connected to this visual may now be bracketed into the same category. This explanation also illustrates how the repeated use of a visual, such as an icon, or a colour, may serve as a guide connecting separate cues from the environment (Höllerer, Jancsary & Grafström 2018). According to Sandberg and Tsoukas (2015), the activity of labelling and connecting different cues is common during sensemaking.

Visuals may also assist with the interpretation of cues and information from the environment (Maitlis & Christianson 2014; Sandberg & Tsoukas 2015). As highlighted by several authors (Bell & Davison 2013; Kassinis & Panayiotou 2017; Höllerer, Jancsary & Grafström 2018), visuals simplify information and provide a holistic 'model for understanding' interconnected processes and concepts (Daft & Weick 1984). Infographics are particularly useful for untangling interconnectedness. I also concur with Daft and Weick (1984) that the contextualisation provided by visuals - such as a photograph of an albatross with a stomach filled with plastic or a cobalt mine in Australia - supports our translation of events and our ability to create meaning.

Lastly, the literature advances that during sensemaking, and indeed sensegiving, meaning is co-created (Maitlis & Christianson 2014). Supporting this idea, my research yielded several examples where visuals and material objects were used as boundary objects (Carlile 2002) to facilitate knowledge transfer, assist in creating new meanings, and connect different ideas and stakeholders as described in the literature (Benn, Edwards & Angus-Leppan 2013; Meyer et al. 2013; Jones et al. 2017). According to Jones et al. (2017), the role of visuals as boundary objects is enhanced by their iconicity, concise presentation of meaning, and subtle persuasive appeal.

5.4.3 The role of visuals in sensegiving

The results of this research illustrate how visuals may be used in generating a compelling narrative that simplifies understanding and explanation. Visual storytelling directly contributes to sensemaking/sensegiving as these processes are grounded in themes of language, communication, and narrative (Boyce 1995; Maitlis & Sonenshein 2010; Cornelissen 2012; Sandberg & Tsoukas 2015).

In order to share our understanding, we need also hold the attention of our audience. Here, the ability of visuals to captivate or engage the audience supports sensegiving. In addition, visuals are able to transcend cultural, geographical, and language barriers (Jones et al. 2017; Höllerer, Jancsary & Grafström 2018). Petersen and Aakerberg (2016) reflected on the role of emojis as a new 'universal language', a description that was extended to the SDG icons in this research.

Finally, as described by Rouleau (2005:1415), “[s]ensegiving is concerned with [their] attempts to influence the outcome, to communicate [their] thoughts about the change to others, and to gain their support”. In using visuals to influence the understanding of others, visuals may personalise and legitimise information creating a sense of authenticity and emotional engagement in the viewer. As expressed by Boxenbaum et al. (2018:608), “the more iconic quality of visual communication gives novel ideas a fact-like character and helps materialize and objectify them”.

The research highlights how visuals may be used to create an emotionally appealing narrative that is both plausible and acceptable to its audience (Weick 1995; Rouleau 2005). As discussed in Chapter 2, emotion, an important part of sensemaking/sensegiving (Weick, Sutcliffe & Obstfeld 2005; Maitlis, Vogus & Lawrence 2013; Maitlis & Christianson 2014), also directs our attention and connects belief to action, illustrating how the ‘emotional and affective’ influence of visuals may contribute throughout sensemaking/sensegiving (O’Neill et al. 2013; Davison, Mclean & Warren 2015; Jones et al. 2017; Kassinis & Panayiotou 2017). It is perhaps also worth noting that the use of visuals to highlight authenticity is particularly relevant to the SDGs in order to rebuild mutual trust between society and business (Bachmann, Gillespie & Priem 2015; BSDC 2017).

Practitioners may also use visual metaphors - and colour - to indirectly convey information about a company’s values, to reinforce a specific interpretation, or even to create an alternative narrative for the audience that is as compelling as the dominant interpretation (Bell & Davison 2013; O’Neill et al. 2013; Jones et al. 2017; Kassinis & Panayiotou 2017). The use of metaphor in sensemaking/sensegiving is common (Maitlis & Christianson 2014), as metaphors, imbued with a sense of familiarity and legitimacy (Cornelissen, Holt & Zundel 2011; Sandberg & Tsoukas 2015), connect past understanding and new experiences. Visual metaphors are also influential as they often evoke emotion in their audience (Hill & Levenhagen 1995; O’Neill et al. 2013).

5.4.4 Visuals as a constraint for sensemaking and sensegiving

Overall, practitioners cautioned against the over-complication of visuals that may affect an engagement with and interpretation of information. In contrast, the ‘over-simplification’ of visuals may lead to the omission of valuable information. It is therefore important that various forms of communication are used to complement each other and reinforce, explain, or clarify information.

In addition, the sustainability practitioners also highlighted that the use of visuals ought to be deliberate, and sensitive to its context, to avoid misrepresentation and misunderstanding during sensemaking and sensegiving. These findings support some of the visual critiques found in the literature, such as how visuals may inaccurately represent information, or veil subjectivities as objective truths (Lurie & Mason 2007; Bell & Davison 2013; Jones et al. 2017).

5.5 Connecting the SDGs, sensemaking/sensegiving, and visuals

In this section, using the reasoning developed throughout the study, I provide a practical example, illustrated in Figure 5.1, that connects the engagement of sustainability practitioners with the SDGs, the processes of sensemaking and sensegiving, and visuals. In the discussion below, I briefly explain this visual starting from the bottom of the figure. It is worth noting that although, for the sake of clarity, clear distinctions have been drawn between the boundaries of the triggers, outcomes, and use of visuals in support of sensemaking and sensegiving, as emphasised throughout this report, these processes are intimately connected, iterative, and mutually reinforcing.

The bottom, light-blue, level of Figure 5.1 summarises the eight challenges, as identified in my study, that may result from business engagement with the SDGs. These challenges, discussed in section 4.2.4, relate to developing an understanding of the SDGs, making the SDGs meaningful for business, creating awareness and focus within the organisation, operationalising the goals, and integrating the SDGs into existing frameworks and strategies.

In the next level, coloured grey, the visual illustrates how these challenges may serve as triggers for sensemaking and sensegiving. For example, when considering the large number of goals and targets, and the need to translate their objectives into something that is meaningful for business, the multiple possible interpretations may trigger sensemaking for sustainability practitioners. Similarly, the need to explain and share this interpretation with stakeholders from the broader organisation may act as a trigger for sensegiving.

Sensemaking is considered to relate to processes of scanning and interpreting information, while sensegiving is associated with explaining and influencing the interpretation of others. The iterative and interconnected nature of sensemaking/sensegiving is highlighted by the cyclical mapping of challenges, from left to right, as primarily associated with either sensemaking or sensegiving.

Finally, in the top level of Figure 5.1, also shown in blue, I provide some practical recommendations and examples of how sustainability practitioners may use visuals to support the processes of scanning, interpreting, explaining, and influencing. The examples are based on the research findings of how visuals may support sensemaking/sensegiving, and activities described by the practitioners in the interviews or in company reports. For clarity, these findings are summarised in section 5.6 below.

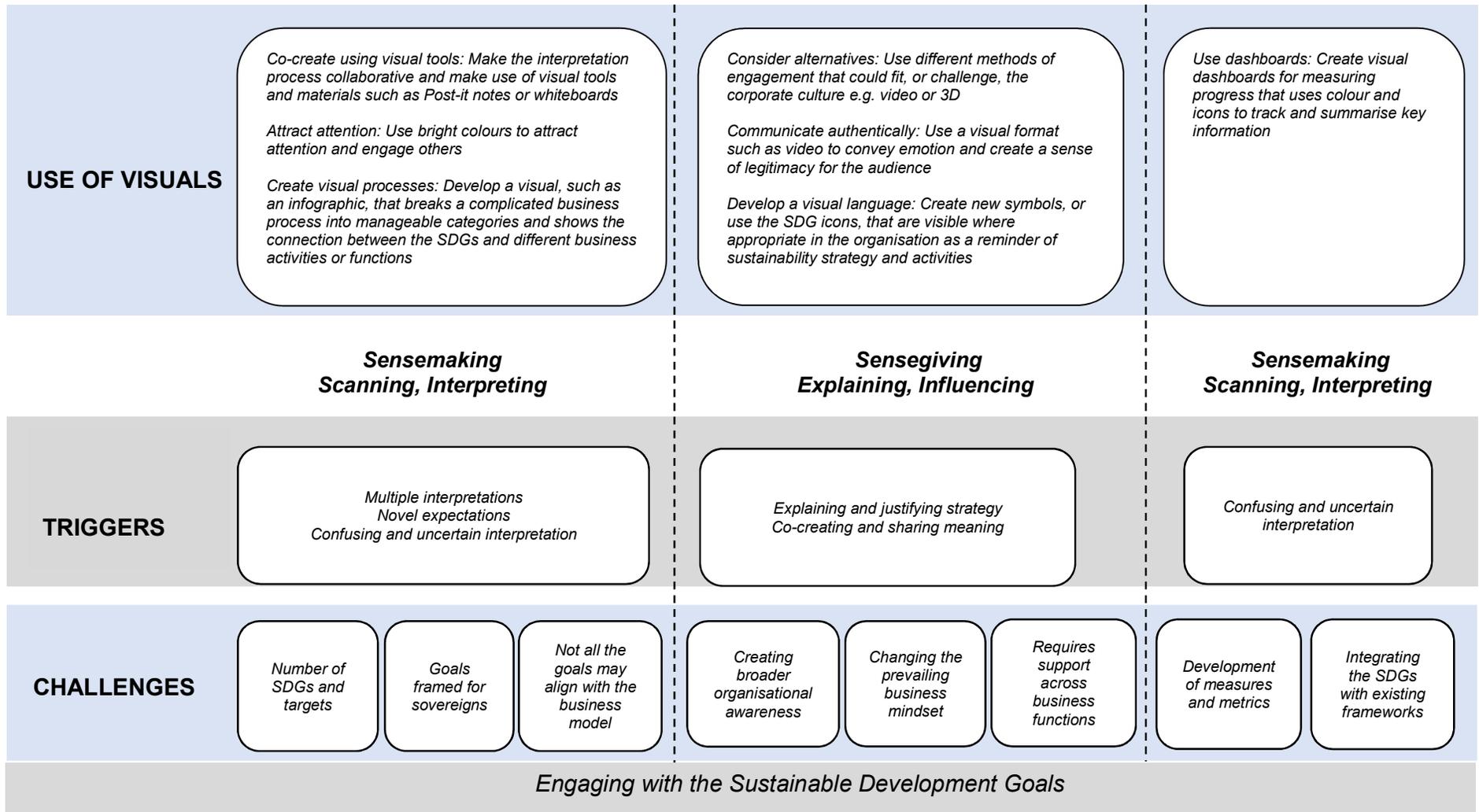


Figure 5.1: Connecting the SDGs, sensemaking/sensegiving, and the role of visuals

5.6 Recommendations for practice

In this section I offer practical insights, illustrated in Figure 5.1, for sustainability practitioners seeking to use visuals in the sensemaking and sensegiving of the SDGs for their organisation:

Co-create understanding using visual tools: Allow the interpretation process of the SDGs to be as collaborative as possible and make use of visual tools and materials such as Post-it notes or whiteboards to facilitate the co-creation of meaning. Using a recognisable visual, such as a matrix with easily understandable icons and short text, may facilitate collaboration without the need for jargon, while the use of materials such as Post-it notes may simplify how information is shared in the group.

Attract attention: Use bright colours to attract attention and engage others in scanning and interpreting the relevance of the SDGs for your business. Later, you may also use colour to hold the attention of your audience when providing feedback on organisational strategy.

Create visual processes: Develop a visual, such as an infographic, that breaks a complicated business process into manageable categories and shows the connection between the SDGs and different business activities or functions. This may make it easier for you to identify both risks and opportunities for your business in relation to the SDGs. The use of the SDG icons overlaid on business processes may also provide a quick visual clue as to which goals are most commonly being identified as relevant to your business, and where integration may be most useful.

Consider alternatives: Consider using different methods of engagement that could fit, or even challenge, the existing corporate culture. For example, consider using short videos or even 3D to share your company's sustainability strategy throughout the organisation. Also, remember that while visuals are a 'universal language', it is worth considering changes to medium or format for communicating to different groups within your organisation.

Communicate authentically: Use a visual format such as video to convey emotion and create a sense of legitimacy for the audience when explaining your company's strategy in relation to the SDGs.

Develop a visual language: Create new symbols, or use the SDG icons, and make these visible where appropriate in the organisation as a reminder of sustainability strategy and activities. For example, you could place the icon for SDG 6 (clean water and sanitation) above bathroom sinks in conjunction with a campaign to raise awareness of water use and management.

Use dashboards: Create visual dashboards that use colour and icons to track progress on sustainability initiatives. These simplify information and are also a quick way of sharing key feedback throughout the organisation.

5.7 Recommendations for future research

This study was exploratory given that the engagement of business with the SDGs, as well as the role of visuals in sensemaking and sensegiving, is underexplored in the literature.

Therefore, this research may serve as the basis for several opportunities for further scholarship. These findings may contribute to the emerging discussion on the role of visuals in organisational sensemaking and sensegiving and highlight how research into visuals from other fields may support and strengthen our understanding of the role in visuals in sensemaking and sensegiving. The framework of scanning, interpreting, explaining, and influencing may be used in future research to guide analysis of how different forms of communication are used in sensemaking/sensegiving. In addition to these broad potential contributions to future research, there are four research avenues I would specifically like to highlight.

The first relates to an extension of sensemaking/sensegiving research to include aspects of emotion, colour, and multi-modality. Although my research highlighted elements of the role of emotion in creating and influencing understanding, it may be worthwhile to explore additional aspects of how emotion complements, or contradicts, the rational during the sensemaking/sensegiving process. This may contribute towards a more holistic understanding of sensemaking/sensegiving. Similarly, my research highlighted the role of colour in sensemaking/sensegiving, and as suggested by Beyes (2017), it may be necessary to increasingly explore the role of colour in organisational research. In addition, considering the potential importance of video as identified in this research, and a future that may involve 'disco' and 'multi-sensory' approaches to reporting, it may be worth considering multi-modal explorations of sensemaking and sensegiving for sustainability practitioners and their audience.

Secondly, in this study I explored the perspectives of sustainability practitioners on the role of visuals in sensemaking/sensegiving. Future research should include the perspectives of the recipients of visual information. Not only could this reinforce some of the findings in this study, but it may also identify areas of disagreement for further exploration. In this study, there was little difference in the results on the use of visuals for internal and external sensemaking/sensegiving. It may be worth exploring the utility of this approach.

Research in these areas may increase the potential of business communication meeting the needs of its intended audience and further extend scholarship on the role of visual communication in the organisational and sensemaking/sensegiving literature. This is especially important if visuals are to be recognised as a legitimate form of expression and exploration in the management literature.

The third recommendation relates to the engagement of companies with the SDGs. In this study, this served as the context for the exploration of visuals in sensemaking/sensegiving. However, a more detailed analysis of the progress, challenges, and outcomes of business engagement with the SDGs may be required. In particular, it may be worth exploring business engagement across a broader sample of companies and organisations. For example, the research could explore if the level of engagement is different between the private sector and public sector, or between different sectors and sizes of companies. This is necessary to not only establish a more detailed understanding of how business is currently supporting the SDGs, and if these are in line with what is ultimately required to meet the SDGs in South Africa, but also to identify the areas where business may require support in implementing their strategy in relation to the SDGs. In addition, it may facilitate the development of a database of challenges, opportunities, and best practice that is grounded in a Global South perspective.

Finally, the importance of the millennial generation was alluded to in this study. However, more research is required, particularly from a South African perspective, on the level of influence of this generation on sustainability topics, and whether they reflect a shift in communication preferences. The findings from such research may allow companies to understand the significance, or lack thereof, of this generation to future strategy, and provide insights on how and if the future use of visuals for sensemaking and sensegiving may change.

5.8 Conclusion and reflection

In this study, I aimed to show that visuals, though currently underexplored in the organisational and sensemaking/sensegiving literature, may contribute to the processes of sensemaking and sensegiving. The engagement of sustainability practitioners with the SDGs provided a rich context for the study that is topical, urgent, and a continuation of my own interests and experiences with the challenges of corporate sustainability.

Considering the current engagement of companies in South Africa with the SDGs, I found that although there is a high level of awareness, many companies are yet to translate awareness into actionable strategy. In addition, while the SDGs may catalyse and frame business activities in support of the sustainability agenda, there are operational and interpretive challenges related to engaging with the SDGs. Exploring how companies use visuals when engaging with and communicating on the SDGs, I found that although most companies use some form of visuals, particularly infographics, the use of moving images and 3D media remains limited. Reviewing how visuals may meaningfully contribute towards sensemaking and sensegiving, I identified and elaborated on 12 activities that are supported by visuals and which form part of the four key sensemaking/sensegiving processes of scanning, interpreting, explaining, and influencing. My research findings contribute to an improved, and much needed, understanding of the role of visuals in the organisational and sensemaking/sensegiving literature, and also provide practical insights for practitioners on the use of visuals in engaging with and communicating on the SDGs.

The research was both challenging and satisfying. I am not a natural visual thinker, and as previously mentioned, I navigated an uneasy co-existence with visuals throughout my research. However, the experience of grappling with the use of visuals in a text-dominated activity, as well as my own exploration and discovery of the use of visuals for understanding and sharing my research findings, greatly contributed to my enjoyment in learning the perspectives of others.

It is important to note that this study does not aim to elevate visuals above other forms of communication, but rather to provide intent and meaning to the use of visuals and their use in support of sensemaking and sensegiving. As this research concludes, it is evident that while 'a picture is worth a thousand words', the use of visuals is rather more nuanced and complex than the idiom may suggest.

Finally, we cannot ignore the urgency of the social and environmental challenges that confront us. It is also clear that business is a critical partner if we are to achieve the ambitious sustainability goals adopted by the UN. In addition to considering the role and expectations of business for the sustainability agenda, it is equally urgent to consider the structures and institutions in which both business, and our modern society, are embedded. In order to address the unprecedented challenges of the Anthropocene, unprecedented action for both sustainable development and corporate sustainability may be required. Indeed, it may yet be time to start reimagining the role of business.

References

- Abolafia, M. Y. 2010. Narrative construction as sensemaking: How a central bank thinks. *Organization Studies* 31 (3): 349–367.
- African Union Commission. 2015. *Agenda 2063: The Africa We Want*. [Online] Available: https://au.int/sites/default/files/pages/3657-file-agenda2063_popular_version_en.pdf. [31 July 2018].
- Agarwal, N., Gneiting, U. & Mhlanga, R. 2017. *Raising the Bar: Rethinking the Role of Business in the Sustainable Development Goals*. Oxford: Oxfam.
- Akash, G. 2018. *Photos: Lives Rent Asunder by Climate Change in Bangladesh*. [Online] Available: <https://www.hindustantimes.com/photos/india-news/photos-lives-rent-asunder-by-climate-change-in-bangladesh/photo-rNI8LVFZp17BRigjcCltqN.html>. [29 September 2018].
- AlphaBeta. 2017. *Valuing the SDG prize: Unlocking Business Opportunities to Accelerate Sustainable and Inclusive Growth*. [Online] Available: <http://s3.amazonaws.com/aws-bsdc/Valuing-the-SDG-Prize.pdf>. [31 July 2018].
- Alshenqeeti, H. 2016. Are emojis creating a new or old visual language for new generations? A socio-semiotic study. *Advances in Language and Literary Studies* 7 (6): 56–69.
- Anastasiadis, P. A. 2012. Knowledge creation within geographically dispersed organisations: Collocation from a sensemaking perspective. Unpublished masters dissertation. Stellenbosch: Stellenbosch University.
- AngloGold Ashanti. 2017a. *Sustainable Development Report 2017*. [Online] Available: <http://www.aga-reports.com/17/sd#home>. [1 September 2018].
- AngloGold Ashanti. 2017b. *South Africa: Mponeng Water Use Cycle*. [Online] Available: <https://www.anglogoldashanti.com/mponeng-water-use-cycle/>. [13 August 2018].
- Aßländer, M. S. & Curbach, J. 2014. The Corporation as citizen? Towards a new understanding of corporate citizenship. *Journal of Business Ethics* 120: 541–554.

- Bachmann, R., Gillespie, N. & Priem, R. 2015. Repairing trust in organizations and institutions: Toward a conceptual framework. *Organization Studies* 36 (9): 1123–1142.
- Bals, L. 2012. Climate change impact on procurement: Risks and opportunities, in Stoner, J. A. & Wankel, C. (eds.). *Managing Climate Change Business Risks and Consequences: Leadership for Global Sustainability*. New York: Palgrave Macmillan. 101–121.
- Bansal, P. & Roth, K. 2000. Why companies go green: A model of ecological responsiveness. *Academy of Management Journal* 43 (4): 717–736.
- Bapuji, H. 2015. Individuals, interactions and institutions: How economic inequality affects organizations. *Human Relations* 68 (7): 1059–1083.
- Basu, K. & Palazzo, G. 2008. Corporate social responsibility: A process model of sensemaking. *Academy of Management Review* 33 (1): 122–136.
- Bell, E. & Davison, J. 2013. Visual management studies: Empirical and theoretical approaches. *International Journal of Management Reviews* 15: 167–184.
- Benn, S., Edwards, M. & Angus-Leppan, T. 2013. Organizational learning and the sustainability community of practice: The role of boundary objects. *Organization & Environment* 26 (2): 184–202.
- Beyes, T. 2017. Colour and organization studies. *Organization Studies* 38 (10): 1457-1482.
- Biermann, F. & Boas, I. 2010. Preparing for a warmer world: Towards a global governance system to protect climate refugees. *Global Environmental Politics* 10 (1): 60–88.
- Boxenbaum, E., Jones, C., Meyer, R. E. & Svejenova, S. 2018. Towards an articulation of the material and visual turn in organization studies. *Organizational Studies* 39 (5-6): 597-616.
- Boyce, M. E. 1995. Collective centring and collective sense-making in the stories and storytelling of one organization. *Organization Studies* 16 (1): 107–138.

- Brønn, P. S. & Vidaver-Cohen, D. 2009. Corporate motives for social initiative: Legitimacy, sustainability, or the bottom line? *Journal of Business Ethics* 87: 91–109.
- Brossard, D. 2013. New media landscapes and the science information consumer. *Proceedings of the National Academy of Sciences of the United States of America* 110: 14096–14101.
- Brown, A. D. & Humphreys, M. 2003. Epic and tragic tales making sense of change. *The Journal Of Applied Behavioral Science* 39 (2): 121–144.
- Brown, A. D., Stacey, P. & Nandhakumar, J. 2008. Making sense of sensemaking narratives. *Human Relations* 61 (8): 1035–1062.
- Bryant, A. & Charmaz, K. 2007. Grounded theory in historical perspective: An epistemological account, in Bryant, A. & Charmaz, K. (eds.). *The SAGE Handbook of Grounded Theory*. Thousand Oaks, California: Sage Publications. 31–58.
- Bryman, A., Bell, E., Hirschsohn, P., dos Santos, A., du Toit, J., Masenge, A., van Aardt, I. & Wagner, C. 2014. *Research methodology: Business and Management Contexts*. Cape Town: Oxford University Press Southern Africa.
- Business.com. 2018. *Top 5 Virtual Reality Business Use Cases*. [Online] Available:<https://www.business.com/articles/virtual-reality-business-use-cases/>. [1 September 2018].
- Business and Sustainable Development Commission. 2017. *Better Business Better World*. [Online] Available: http://report.businesscommission.org/uploads/BetterBiz-BetterWorld_170215_012417.pdf. [2 January 2018].
- Carlile, P. R. 2002. A pragmatic view of knowledge and boundaries: Boundary objects in new product development. *Organization Science* 13 (4): 442–455.
- Carroll, A. B. 1999. Corporate social responsibility: Evolution of a definitional construct. *Business & Society* 38 (3): 268–295.

- Carter, P. L. & Reardon, S. F. 2014. *Inequality matters: A William T. Grant Foundation Inequality Paper*. New York: William T. Grant Foundation.
- Casey, D. & Sieber, S. 2016. Employees, sustainability and motivation: Increasing employee engagement by addressing sustainability and corporate social responsibility. *Research in Hospitality Management* 6 (1): 69–76.
- Chapman, D. A., Corner, A., Webster, R. & Markowitz, E. M. 2016. Climate visuals: A mixed methods investigation of public perceptions of climate images in three countries. *Global Environmental Change* 41: 172–182.
- Charmaz, K. 2011. Grounded theory methods in social justice research, in Denzin, N. K. & Lincoln, Y. (eds.). *Handbook of Qualitative Research*. 4th ed. Thousand Oaks, California: Sage Publications. 359–380.
- Cherrier, H., Russell, S. V & Fielding, K. 2012. Corporate environmentalism and top management identity negotiation. *Journal of Organizational Change Management* 25 (4): 518–534.
- Cho, C. H., Michelon, G. & Patten, D. M. 2012. Impression management in sustainability reports: An empirical investigation of the use of graphs. *Accounting and the Public Interest* 12: 16–37.
- Cilliers, P. 2006. On the importance of a certain slowness. *E:CO Emergence: Complexity and Organization* 8 (3): 106–113.
- Climate Outreach. n.d. *Climate Visuals*. [Online] Available: <https://www.climatevisuals.org/about>. [1 August 2018].
- Committee for Economic Development. 1971. *Social Responsibilities of Business Corporations*. [Online] Available: https://www.ced.org/pdf/Social_Responsibilities_of_Business_Corporations.pdf. [18 September 2018].
- Cornelissen, J. P. 2012. Sensemaking under pressure: The influence of professional roles and social accountability on the creation of sense. *Organization Science* 23 (1): 118–137.

Cornelissen, J. P., Holt, R. & Zundel, M. 2011. The role of analogy and metaphor in the framing and legitimization of strategic change. *Organization Studies* 32 (12): 1701–1716.
Crane, A. 2000. Corporate greening as amoralization. *Organization Studies* 21 (4): 673–696.

Creswell, J. 2007. *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. 2nd ed. Thousand Oaks, California: Sage Publications.

Creswell, J. 2014. *Research design: Qualitative, Quantitative, and Mixed Methods Approaches*. 4th ed. Thousand Oaks, California: Sage Publications.

Crews, D. 2010. Strategies for implementing sustainability: Five leadership challenges. *SAM Advanced Management Journal* 75 (2): 15–21.

Crutzen, P. J. 2002. Geology of mankind. *Nature* 415: 23.

Crutzen, P. J. & Stoermer, E. 2000. The "Anthropocene". *The International Geosphere–Biosphere Programme (IGBP) Newsletter* 41: 17–18.

Currie-Alder, B. 2016. Silent revolution in research for sustainability. *Journal of Renewable Energy and Sustainable Development* 2 (1): 2–3.

Daft, R. L. & Weick, K. E. 1984. Toward a model of organizations as interpretation systems. *Academy of Management Review* 9 (2): 284–295.

Davis, K. 1960. Can business afford to ignore social responsibilities? *California Management Review* 2 (3): 70–76.

Davison, J., Mclean, C. & Warren, S. 2015. Looking back: Ten years of visual qualitative research. *Qualitative Research in Organisations and Management: An International Journal* 10 (4): 355–359.

Dayal, H. 2018. Co-ordinated planning, monitoring, and evaluation, in Fourie, W. (ed.). *Implementing the Sustainable Development Goals in South Africa: Challenges & Opportunities*. Pretoria: South African SDG Hub.

- de Jongh, D. & Möllmann, C. M. 2014. Market barriers for voluntary climate change mitigation in the South African private sector. *South African Journal of Economic and Management Sciences* 17 (5): 639–652.
- Dobson, R. & Bertels, S. 2017. *The Road to Context: Contextualising Your Strategy & Goals Casebook*. [Online] Available: https://embeddingproject.org/system/attachments/documents/000/000/078/original/EP_The_Road_to_Context_Guidebook.pdf?1527885106. [15 January 2018].
- Domínguez, M., Pineda, F. & Mateu, A. 2014. Life in a nutshell: Evolution of a migratory metaphor in Spanish cartoons. *Media, Culture & Society* 36 (6): 810–825.
- du Pisani, J. A. 2006. Sustainable development - historical roots of the concept. *Environmental Sciences* 3 (2): 83–96.
- Dutton, J. E. & Dukerich, J. M. 1991. Keeping an eye on the mirror: Image and identity in organizational adaptation. *Academy of Management Journal* 34 (3): 517–554.
- Dyllick, T. & Hockerts, K. 2002. Beyond the business case for corporate sustainability. *Business Strategy and the Environment* 11 (2): 130–141.
- Eisenhardt, K. M., Graebner, M. E. & Sonenshein, S. 2016. Grand challenges and inductive methods: Rigor without rigor mortis. *Academy of Management Journal* 59 (4): 1113–1123.
- El Refaie, E. 2003. Understanding visual metaphor: The example of newspaper cartoons. *Visual Communication* 2 (1): 75–95.
- Elder, R. 2017. *LinkedIn Video Sharing Could be a Revelation*. [Online] Available: <https://www.businessinsider.com/linkedin-video-sharing-could-be-a-revelation-2017-7?IR=T>. [1 September 2018].
- Emmison, M. & Smith, P. 2000. *Researching the Visual: Images, Objects, Context and Interactions in Social and Cultural Inquiry*. Thousand Oaks, California: Sage Publications.
- Ferraro, F., Etzion, D. & Gehman, J. 2015. Tackling grand challenges pragmatically: Robust action revisited. *Organization Studies* 36 (3): 363–390.

- Fink, A. 2003. What Is a Survey? When Do You Use One?, in Fink, A. (ed.). *The Survey Handbook*. Thousand Oaks, California: Sage Publications. 1–29.
- Fiol, C. M. 2002. Capitalizing on paradox: The role of language in transforming organizational identities. *Organization Science* 13 (6): 653–666.
- Folke, C., Biggs, R., Norström, A., Reyers, B. & Rockström, J. 2016. Social-ecological resilience and biosphere-based sustainability science. *Ecology and Society* 21 (3): 41.
- Frederick, W. 1960. The growing concern over business responsibility. *California Management Review* 2 (4): 54–61.
- Friedman, M. 1970. *The Social Responsibility of Business is to Increase its Profits*. [Online] Available: <http://www.umich.edu/~thecore/doc/Friedman.pdf>. [24 August 2018].
- Gabriel, Y. 2004. Narratives, stories and texts, in Grant, D., Hardy, C., Oswick, C. & Putnam, L. (eds.). *The SAGE Handbook of Organizational Discourse*. Thousand Oaks, California: Sage Publications. 62–77.
- Garreau, L., Mouricou, P. & Grimand, A. 2015. Drawing on the map: An exploration of strategic sensemaking/giving practices using visual representations. *British Journal of Management* 26 (4): 689–712.
- Gephart, R. P. 1993. The textual approach: Risk and blame in disaster sensemaking. *Academy of Management Journal* 36 (6): 1465–1514.
- Giesen, D., Meertens, V., Vis-Visschers, R. & Beukenhorst, D. 2012. *Questionnaire Development*. The Hague: Statistics Netherlands.
- Gioia, D. A. & Chittipeddi, K. 1991. Sensemaking and sensegiving in strategic change initiation. *Strategic Management Journal* 12 (6): 433–448.
- Gioia, D. A., Corley, K. G. & Hamilton, A. L. 2012. Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. *Organizational Research Methods* 16 (1): 15–31.

Gioia, D. A., Thomas, J. B., Clark, S. M. & Chittipeddi, K. 1994. Symbolism and strategic change in academia: The dynamics of sensemaking and influence. *Organization Science* 5 (3): 363–383.

Glaser, B. & Strauss, A. 1967. *The Discovery of Grounded Theory: Strategies for Qualitative Research*. New Brunswick: AldineTransaction.

Global Reporting Initiative & United Nations Global Compact. 2017. *An Analysis of the Goals and Targets*. [Online] Available:

https://www.unglobalcompact.org/docs/publications/GRI_UNGC_SDG_Reporting_An_Analysis_of_Goals_and_Targets_2017.pdf. [26 August 2018].

Global Reporting Initiative & United Nations Global Compact. 2018. *Integrating the SDGs into Corporate Reporting: A Practical Guide*. [Online] Available:

https://www.globalreporting.org/resourcelibrary/GRI_UNGC_Reporting-on-SDGs_Practical_Guide.pdf. [26 August 2018].

Global Reporting Initiative, United National Global Compact & World Business Council for Sustainable Development. 2015. *SDG Compass: The Guide for Business Action on the SDGs*. [Online] Available: https://sdgcompass.org/wp-content/uploads/2015/12/019104_SDG_Compass_Guide_2015.pdf [15 January 2018].

Guadagno, R., Rempala, D. M., Murphy, S. & Okdie, B. M. 2013. What makes a video go viral? An analysis of emotional contagion and Internet memes. *Computers in Human Behaviour* 29: 2312–2319.

Guba, E. & Lincoln, Y. 1994. Competing paradigms in qualitative research, in Denzin, N. K. & Lincoln, Y. (eds.). *Handbook of Qualitative Research*. Thousand Oaks, California: Sage Publications. 105–117.

Gunningham, N., Kagan, R. A. & Thornton, D. 2004. Social license and environmental protection: Why businesses go beyond compliance. *Law and Social Inquiry* 29: 307–341.

Hahn, T., Figge, F., Aragón-Correa, J. A. & Sharma, S. 2017. Advancing research on corporate sustainability: Off to pastures new or back to the roots? *Business & Society* 56 (562): 155–185.

- Hahn, T., Pinkse, J., Preuss, L. & Figge, F. 2015. Tensions in corporate sustainability: Towards an integrative framework. *Journal of Business Ethics* 127: 297–316.
- Hahn, T., Preuss, L., Pinkse, J. & Figge, F. 2014. Cognitive frames in corporate sustainability: Managerial sensemaking with paradoxical and business case frames. *Academy of Management Review* 39 (4): 463–487.
- Hák, T., Janoušková, S. & Moldan, B. 2016. Sustainable Development Goals: A need for relevant indicators. *Ecological Indicators* 60: 565–573.
- Hall, J. K. & Martin, M. J. C. 2005. Disruptive technologies, stakeholders and the innovation value-added chain: A framework for evaluating radical technology development. *R&D Management* 35 (3): 273–284.
- Hardin, G. 1968. The tragedy of the commons. *Science* 162: 1243–1248.
- Heikkurinen, P. & Bonnedahl, K. J. 2013. Corporate responsibility for sustainable development: A review and conceptual comparison of market- and stakeholder-oriented strategies. *Journal of Cleaner Production* 43: 191–198.
- Henwood, K. & Pidgeon, N. 2003. Grounded theory in psychological research, in Camic, P. M., Rodes, J. E. & Yardley, L. (eds.). *Qualitative Research in Psychology: Expanding Perspectives in Methodology and Design*. Washington, DC: American Psychological Association. 131–155.
- Hill, R. C. & Levenhagen, M. 1995. Metaphors and mental models: Sensemaking and sensegiving in innovative and entrepreneurial activities. *Journal of Management* 21 (6): 1057–1074.
- Hoek, M. 2018. *The Trillion Dollar Shift. Achieving the Sustainable Development Goals: Business for Good is Good Business*. London and New York: Routledge.
- Hoffman, A. J. & Ehrenfeld, J. 2015. The fourth wave: Management science and practice in the age of the Anthropocene, in Mohrman, S. A., O’Toole, J. & Lawler, E. E., III. (eds.). 1st ed. *Corporate stewardship: Achieving Sustainable Effectiveness*. London: Routledge. 228–246.

Hoffman, A. J. & Ocasio, W. 2001. Not all events are attended equally: Toward a middle-range theory of industry attention to external events. *Organization Science* 12 (4): 414–434.

Höllerer, M. A., Jancsary, D. & Grafström, M. 2018. 'A Picture is worth a thousand words': Multimodal sensemaking of the global financial crisis. *Organization Studies* 39 (5–6): 617–644.

Höllerer, M., Jancsary, D., Meyer, R. & Vettori, O. 2013. Imageries of corporate social responsibility: Visual recontextualization and field-level meaning, in Lounsbury, M. & Boxenbaum, E. (eds.). *Institutional Logics in Action, Part B (Research in the Sociology of Organizations, Volume 39 Part B)*. Bingley: Emerald Group Publishing Limited. 139–174.

Holt, R. & Cornelissen, J. 2014. Sensemaking revisited. *Management Learning* 45 (5): 525–539.

International Council for Science. 2017. *A Guide to SDG interactions: From Science to Implementation*. [Online] Available: <https://council.science/cms/2017/05/SDGs-Guide-to-Interactions.pdf>. [27 July 2018].

International Federation of Library Associations and Institutions. 2018. *Libraries and the Sustainable Development Goals: A Storytelling Manual*. [Online] Available: <https://www.ifla.org/files/assets/hq/topics/libraries-development/documents/sdg-storytelling-manual.pdf>. [1 September 2018].

Investec. 2017. *Corporate Responsibility Report*. [Online] Available: https://www.investec.com/content/dam/south-africa/welcome-to-investec/corporate-responsibility/sustainability_reports_statements/Investec%20sustainability%20report%202017.pdf. [1 September 2018].

Investec. 2018. *Corporate Responsibility Report*. [Online] Available: https://www.investec.com/content/dam/south-africa/welcome-to-investec/corporate-responsibility/sustainability_reports_statements/Investec-corporate-responsibility-report-2018-FINAL.pdf. [1 July 2018].

Jarman, J. 2016. Social inequality and its consequences in the twenty-first century. *Journal of the Academy of Social Sciences* 11 (2–3): 102–112.

Johannesburg Stock Exchange. 2018a. *Johannesburg Stock Exchange*. [Online] Available: <https://www.jse.co.za/>. [2 April 2018].

Johannesburg Stock Exchange. 2018b. *JSE Limited Listings Requirements*. [Online] Available: <https://www.jse.co.za/content/JSERulesPoliciesandRegulationItems/JSE%20Listings%20Requirements.pdf>. [2 April 2018]

Jones, C., Meyer, R. E., Jancsary, D. & Höllerer, M. A. 2017. The material and visual basis of institutions, in Greenwood, R., Oliver, C., Lawrence, T. & Meyer, R. E. (eds.). *The SAGE Handbook of Organizational Institutionalism*. Thousand Oaks, California: Sage Publications. 621-646.

Kaplan, S. 2008. Framing contests: Strategy making under uncertainty. *Organization Science* 19 (5): 729–752.

Kassinis, G. & Panayiotou, A. 2017. The helix of change: A visual metaphor. *European Management Review* 14: 143–163.

Khondker, H. H. 2015. From "The Silent Spring" to the globalization of the environmental movement. *Journal of International & Global Studies* 6 (2): 25–37.

Ki-moon, B. 2015. *Secretary-General's Remarks at the United Nations Private Sector Forum [as prepared for delivery]*. [Online] Available: <https://www.un.org/sg/en/content/sg/statement/2015-09-26/secretary-generals-remarks-united-nations-private-sector-forum>. [21 September 2018].

King Committee. 2016. *King IV: Report on Corporate Governance in South Africa*. [Online] Available: https://c.ymcdn.com/sites/www.iodsa.co.za/resource/resmgr/king_iv/King_IV_Report/loDSA_King_IV_Report_-_WebVe.pdf. [2 April 2018].

Koehler, G. 2015. Seven decades of 'development', and now what? *Journal of International Development* 27: 733–751.

- Kok, M., Sewell, A., de Blois, F., Warrink, A., Lucas, P. & van Oorschot, M. 2017. *People and the Earth: International cooperation for the Sustainable Development Goals in 23 infographics*. The Hague: PBL Netherlands Environmental Assessment Agency.
- Kolk, A. 2016. The social responsibility of international business: From ethics and the environment to CSR and sustainable development. *Journal of World Business* 51 (1): 23–34.
- Koskinen, K. U. 2005. Metaphoric boundary objects as co-ordinating mechanisms in the knowledge sharing of innovation processes. *European Journal of Innovation Management* 8 (3): 323–335.
- KPMG. 2018. *How to Report on the SDGs: What Good Looks Like and Why It Matters*. [Online] Available: <https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2018/02/how-to-report-on-sdgs.pdf>. [26 August 2018].
- Kumi, E., Arhin, A. A. & Yeboah, T. 2014. Can post-2015 sustainable development goals survive neoliberalism? A critical examination of the sustainable development-neoliberalism nexus in developing countries. *Environment, Development and Sustainability* 16: 539–554.
- Lankow, J., Ritchie, J. & Crooks, R. 2012. *Infographics: The Power of Visual Storytelling*. New Jersey: John Wiley and Sons.
- Leaf, C. 2018. *Deploying the Profit Motive to beat Ebola*. [Online] Available: <http://fortune.com/2018/08/20/merck-ebola-outbreak-vaccine/>. [25 August 2018].
- Levitt, T. 1958. The dangers of social responsibility. *Harvard Business Review* September-October: 41–50.
- Limelight Networks. 2017. *Market Research: The State of Online Video 2017*. [Online] Available: https://img03.en25.com/Web/LLNW/%7B66d0e66a-ac16-4c1e-9e12-d8d845f2bddf%7D_State_of_Online_Video_2017.pdf. [1 September 2018].
- Liu, F. & Maitlis, S. 2014. Emotional dynamics and strategizing processes: A study of strategic conversations in top team meetings. *Journal of Management Studies* 51 (2): 202–234.

London Stock Exchange Group. 2018. *FTSE/JSE Responsible Investment Index Series v1.6*. [Online] Available: <https://www.jse.co.za/content/JSEIndexClassificationandCodesItems/FTSE%20JSE%20Responsible%20Investment%20Index%20Ground%20Rules%20v1%206.pdf>. [2 April 2018].

Lucci, P. 2012. *Post-2015 MDGs: What Role for Business?* London: Overseas Development Institute.

Luke, T. 2013. Corporate social responsibility: An uneasy merger of sustainability and development. *Sustainable Development* 21: 83–91.

Lurie, N. H. & Mason, C. H. 2007. Visual representation: Implications for decision making. *Journal of Marketing* 71 (1): 160–177.

Lutts, R. H. 1985. Chemical fallout: Rachel Carson's "Silent Spring", radioactive fallout, and the environmental movement. *Environmental Review: ER* 9 (3): 210–225.

Machingura, F. & Lally, S. 2017. *The Sustainable Development Goals and Their Trade-offs*. London: Overseas Development Institute.

Maitlis, S. & Christianson, M. 2014. Sensemaking in organizations: Taking stock and moving forward. *The Academy of Management Annals* 8 (1): 57–125.

Maitlis, S. & Lawrence, T. B. 2007. Triggers and enablers of sensegiving in organizations. *Academy of Management Journal* 50 (1): 57–84.

Maitlis, S. & Sonenshein, S. 2010. Sensemaking in crisis and change: Inspiration and insights From Weick (1988). *Journal of Management Studies* 47 (3): 551–580.

Maitlis, S., Vogus, T. J. & Lawrence, T. B. 2013. Sensemaking and emotion in organizations. *Organizational Psychology Review* 3 (3): 222–247.

Malan, D. 2016. Corporate support for the SDGs: A South African perspective. *The Journal of Corporate Citizenship* 64: 98–120.

Marcus, J., Kurucz, E. C. & Colbert, B. A. 2010. Conceptions of the business-society-nature interface: Implications for management scholarship. *Business & Society* 49 (3): 402–438.

Margolis, J. D. & Walsh, J. P. 2003. Misery loves companies: Rethinking social initiatives by business. *Administrative Science Quarterly* 48: 268–305.

Marshall Egan, T. 2002. Grounded theory research and theory building. *Advances in Developing Human Resources* 4 (3): 277–295.

Martin, P. Y. & Turner, B. A. Grounded theory and organizational research. *The Journal of Applied Behavioral Science* 22 (2): 141-157.

Maxwell, J. A. 2013. Designing a qualitative study, in Bickman, L. & Rog, D. J. (eds.). *The SAGE Handbook of Applied Social Research Methods*. Thousand Oaks, California: Sage Publications. 214–253.

McEwan, C., Mawdsley, E., Banks, G. & Scheyvens, R. 2017. Enrolling the private sector in community development: Magic bullet or sleight of hand? *Development and Change* 48 (1): 28–53.

Meadows, D. H., Meadows, D. L., Randers, J. & Behrens, W. W., III. 1972. *The Limits to Growth*. New York: Universe Books.

Mebratu, D. 1998. Sustainability and sustainable development: Historical and conceptual review. *Environmental Impact Assessment Review* 18: 483–520.

Meyer, A. 1991. Visual data in organizational research. *Organization Science* 2 (2): 218–236.

Meyer, R., Höllerer, M., Jancsary, D. & van Leeuwen, T. 2013. The visual dimension in organizing, organization, and organization research: Core ideas, current developments, and promising avenues. *Academy of Management Annals* 7 (1): 489–555.

Miles, M., Huberman, M. & Saldana, J. 2014a. Research design and management, in Miles, M., Huberman, M. & Saldana, J. *Qualitative Data Analysis: A Methods Sourcebook*. 3rd ed. Thousand Oaks, California: Sage Publications. 17–43.

Miles, M., Huberman, M. & Saldana, J. 2014b. Methods of exploring, in Miles, M., Huberman, M. & Saldana, J. *Qualitative Data Analysis: A Methods Sourcebook*. 3rd ed. Thousand Oaks, California: Sage Publications 121-159.

Millar, C., Hind, P. & Magala, S. 2012. Sustainability and the need for change: Organisational change and transformational vision. *Journal of Organizational Change Management* 25 (4): 489–500.

Milne, M. J. & Gray, R. 2013. W(h)ither ecology? The triple bottom line, the Global Reporting Initiative, and corporate sustainability reporting. *Journal of Business Ethics* 118: 13–29.

Mruck, K. & Mey, G. 2007. Grounded theory and reflexivity, in Bryant, A. & Charmaz, K. (eds.). *The SAGE Handbook of Grounded Theory*. Thousand Oaks, California: Sage Publications. 514–538.

Murthy, V. P. 2012. Integrating corporate sustainability and strategy for business performance. *World Journal of Entrepreneurship, Management and Sustainable Development* 8 (1): 5–17.

Myers, P. 2007. Sexed up intelligence or irresponsible reporting? The interplay of virtual communication and emotion in dispute sensemaking. *Human Relations* 60 (4): 609–636.

Nedbank. 2017. *Sustainable Development Review*. [Online] Available: <https://nedbank.co.za/content/dam/nedbank/site-assets/AboutUs/Information%20Hub/Integrated%20Report/2017/2017%20Sustainability%20Review.pdf>. [1 September 2018].

Neiger, C. 2016. *VR is Too Expensive for Most People: But That's About to Change*. [Online] Available: <https://www.businessinsider.com/why-is-virtual-reality-so-expensive-2016-9?IR=T>. [1 September 2018].

O'Neill, S. J., Boykoff, M., Niemeyer, S. & Day, S. A. 2013. On the use of imagery for climate change engagement. *Global Environmental Change* 23: 413–421.

O'Reilly, K. 2018. *Is Virtual Reality the Secret Sauce for Climate Action?* [Online] Available: <https://www.sierraclub.org/sierra/virtual-reality-secret-sauce-for-climate-action>. [1 August 2018].

Otten, J. J., Cheng, K. & Drewnowski, A. 2015. Infographics and public policy: Using data visualization to convey complex information. *Health Affairs (Millwood)* 34 (11): 1901–1907.

Oxford Dictionaries. 2015. *Word of the Year 2015*. [Online] Available: <https://en.oxforddictionaries.com/word-of-the-year/word-of-the-year-2015>. [1 September 2018].

Pater, A. & Van Lierop, K. 2006. Sense and sensitivity: The roles of organisation and stakeholders in managing corporate social responsibility. *Business Ethics: A European Review* 15 (4): 339–351.

Petersen, C. S. & Aakerberg, M. C. 2016. *Language and Communication in the 21st Century*. [Online] Available: <http://www.scenariomagazine.com/language-and-communication-in-the-21st-century/>. [1 September 2018].

Pogge, T. & Sengupta, M. 2015. The Sustainable Development Goals: A plan for building a better world? *Journal of Global Ethics* 11 (1): 56–64.

Polanyi, M. 1967. Sense-giving and sense-reading. *Philosophy* 42 (162): 301–325.

Porac, J. F. & Thomas, H. 2006. Managing cognition and strategy: Issues, trends and future directions, in Pettigrew, A., Thomas, H., & Whittington, R. (eds.). *Handbook of Strategy and Management*. London: Sage Publications. 165–181.

Porter, M. & Reinhardt, F. 2007. A strategic approach to climate. *Harvard Business Review* 85 (10): 22–26.

PricewaterhouseCoopers. 2016a. *Make it Your Business: Engaging with the Sustainable Development Goals*. [Online] Available: https://www.pwc.com/gx/en/sustainability/SDG/SDG%20Research_FINAL.pdf. [10 November 2017].

PricewaterhouseCoopers. 2016b. *Make it Your Business: Engaging with the Sustainable Development Goals - A South African Perspective*. [Online] Available: <https://www.pwc.co.za/en/assets/pdf/make-it-your-business.pdf>. [27 November 2017].

PricewaterhouseCoopers. 2016c. *Redefining Business Success in a Changing World: CEO Survey*. [Online] Available: <https://www.pwc.com/gx/en/ceo-survey/2016/landing-page/pwc-19th-annual-global-ceo-survey.pdf>. [24 August 2018].

PricewaterhouseCoopers. 2016d. *Navigating the SDGs: A Business Guide to Engaging with the UN Global Goals*. [Online] Available: <https://www.pwc.com/gx/en/sustainability/publications/PwC-sdg-guide.pdf>. [25 August 2018].

PricewaterhouseCoopers. 2017. *SDG Reporting Challenge 2017: Exploring Business Communication on the Global Goals*. [Online] Available: <https://www.pwc.com/gx/en/sustainability/SDG/pwc-sdg-reporting-challenge-2017-final.pdf>. [26 August 2018].

Quint, R. 2014. Leveraging Africa's voice: Determining the post-2015 development goals. *SAIS Review* 34 (2): 113–120.

Reilly, A. H. & Hynan, K. A. 2014. Corporate communication, sustainability, and social media: It's not easy (really) being green. *Business Horizons* 57: 747–758.

Ridley, D. 2012. *The Literature Review: A Step-by step Guide for Students*. 2nd ed. Thousand Oaks, California: Sage Publications.

Robinson, N. A. 2012. Beyond sustainability: Environmental management for the Anthropocene epoch. *Journal of Public Affairs* 12 (3): 181–194.

Rockström, J., Bai, X. & deVries, B. 2018. Global sustainability: The challenge ahead. *Global Sustainability* 1 (e6): 1–3.

Rome, A. 2003. "Give Earth a chance": The environmental movement and the sixties. *The Journal of American History* 90 (2): 525–554.

- Rouleau, L. 2005. Micro-practices of strategic sensemaking and sensegiving: How middle managers interpret and sell change every day. *Journal of Management Studies* 42 (7): 1413–1441.
- Rouleau, L. & Balogun, J. 2011. Middle managers, strategic sensemaking, and discursive compliance. *Journal of Management Studies* 48 (5): 953–983.
- Sachs, J. 2012. From Millennium Development Goals to Sustainable Development Goals. *Lancet* 379: 2206–2211.
- Sandberg, J. & Tsoukas, H. 2015. Making sense of the sensemaking perspective: Its constituents, limitations, and opportunities for further development. *Journal of Organizational Behavior* 36: S6–S32.
- Sasol. 2018. *Experience the Sasol Secunda Plant in Virtual Reality: 360 degree video*. [Online] Available: <https://www.youtube.com/watch?v=y0qKEkVN7OQ>. [1 September 2018].
- Scheyvens, R., Banks, G. & Hughes, E. 2016. The private sector and the SDGs: The need to move beyond 'business as usual'. *Sustainable Development* 24: 371–382.
- Schouten, E. M. J. & Remme, J. 2006. Making sense of corporate social responsibility in international business: Experiences from Shell. *Business Ethics: A European Review* 15 (4): 365–379.
- Schwartz, M. S. & Carroll, A. B. 2003. Corporate social responsibility: A three-domain approach. *Business Ethics Quarterly* 13 (4): 503–530.
- Seltenrich, N. 2015. New link in the food chain? Marine plastic pollution and seafood safety. *Environmental Health Perspectives* 123 (2): A34–A41.
- Sharenet. 2018. *Top 100 Companies by Market Capital*. [Online] Available: <http://www.sharenet.co.za/free/topco.phtml> [2 April 2018].
- Sharma, G. & Good, D. 2013. The work of middle managers: Sensemaking and sensegiving for creating positive social change. *The Journal of Applied Behavioral Science* 49 (1): 95–122.

Shrivastava, P. 1995. The role of corporations in achieving ecological sustainability. *Academy of Management Review* 20 (4): 936–960.

Silicon Valley Community Foundation. 2017. *The United Nations Sustainable Development Goals: A Why, When and How Guide for Business*. [Online] Available: <https://interactivepdf.uniflip.com/2/88537/1089511/pub/document.pdf>. [26 August 2018].

Smerek, R. 2011. Sensemaking and sensegiving: An exploratory study of the simultaneous “being and learning” of new college and university presidents. *Journal of Leadership & Organizational Studies* 18 (1): 80–94.

Smiciklas, M. 2012. *The Power of Infographics: Using Pictures to Communicate and Connect With Your Audience*. Indianapolis: Que Publishing.

Solomons, I. 2017. *Radebe Calls for Acceleration in Achieving 2030 Agenda for SDGs, Support from Private Sector*. [Online] Available: http://www.engineeringnews.co.za/article/-radebe-calls-for-acceleration-in-achieving-2030-agenda-for-sdgs-support-from-private-sector-2017-08-31/rep_id:4136. [19 December 2017].

Standard Bank. 2017. *Standard Bank's Report to Society*. [Online] Available: http://sustainability.standardbank.com/pdf/Standard_bank_RTS2017_report_to_society.pdf. [1 September 2018].

Star, S. L. 2010. This is not a boundary object: Reflections on the origin of a concept. *Science, Technology & Human Values* 35 (5): 601–617.

Star, S. L. & Griesemer, J. R. 1989. Institutional ecology, 'translations' and boundary objects: Amateurs and professionals in Berkeley's Museum of Vertebrate Zoology. *Social Studies of Science* 19 (3): 387–420.

Steffen, W., Broadgate, W., Deutsch, L., Gaffney, O. & Ludwig, C. 2015. The trajectory of the Anthropocene: The Great Acceleration. *The Anthropocene Review* 2 (1): 81–98.

Steffen, W., Crutzen, P. J. & McNeill, J. R. 2007. The Anthropocene: Are humans now overwhelming the great forces of nature? *Ambio* 36 (8): 614–621.

Steffen, W., Persson, Å., Deutsch, L., Zalasiewicz, J., Williams, M., Richardson, K., Crumley, C., Crutzen, P., Folke, C., Gordon, L., Molina, M., Ramanathan, V., Rockström, J., Scheffer, M., Schellnhuber, H. J. & Svedin, U. 2011. The Anthropocene: From global change to planetary stewardship. *Ambio* 40 (7): 739–761.

Stockholm Environmental Institute. 2018. *Communicating for Change – Creating a Visual Language for How SDGs Interact*. [Online] Available: <https://www.sei.org/projects-and-tools/projects/communicating-change-creating-visual-language-sdgs/>. [6 June 2018].

Suddaby, R. 2006. From the editors: What grounded theory is not. *Academy of Management Journal* 49 (4): 633–642.

SustainableTP. 2018. *Climoji*. [Online] Available: <https://climoji.org/>. [1 August 2018].

Swilling, M. & Annecke, E. 2012. *Just Transitions*. Cape Town: UCT Press.

Tauch, C. & Kanjo, E. 2016. The roles of emojis in mobile phone notifications. *Proceedings of the 2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing: Adjunct*. 1560–1565.

Tempels, T., Blok, V. & Verweij, M. 2017. Understanding political responsibility in corporate citizenship: Towards a shared responsibility for the common good. *Journal of Global Ethics* 13 (1): 90–108.

The Economist. 2010. *Data, Data Everywhere: A Special Report on Managing Information*. [Online] Available: <https://www.emc.com/collateral/analyst-reports/ar-the-economist-data-data-everywhere.pdf>. [1 September 2018].

The Republic of South Africa. 1996. *Constitution of the Republic of South Africa No.108 of 1996*. [Online] Available: <https://www.gov.za/sites/default/files/images/a108-96.pdf>. [10 September 2018].

Thomas, J. B., Clark, S. M. & Gioia, D. A. 1993. Strategic sensemaking and organizational performance: Linkages among scanning, interpretation, action, and outcomes. *Academy of Management Journal* 36 (2): 239–270.

Thornberg, R. 2012. Informed grounded theory. *Scandinavian Journal of Educational Research* 3 (56): 243–259.

Unilever. 2018. *Transforming the Palm Oil Industry*. [Online] Available: <https://www.unilever.com/sustainable-living/reducing-environmental-impact/sustainable-sourcing/transforming-the-palm-oil-industry/>. [25 August 2018].

United Nations. 2015a. *The Millennium Development Goals Report*. [Online] Available: http://www.undp.org/content/dam/undp/library/MDG/english/UNDP_MDG_Report_2015.pdf. [31 July 2018].

United Nations. 2015b. *Communications Materials: United Nations Sustainable Development Goals*. [Online] Available: <https://www.un.org/sustainabledevelopment/news/communications-material/>. [2 September 2018].

United Nations. 2016. *UN Guidelines for the Use of the SDG Logo*. [Online] Available: <https://www.un.int/news/un-guidelines-use-sdg-logo>. [15 January 2018].

United Nations Environment Programme. 2017. *The Status of Climate Change Litigation-A Global Review*. [Online] Available: <http://wedocs.unep.org/bitstream/handle/20.500.11822/20767/climate-change-litigation.pdf?isAllowed=y&sequence=1>. [31 July 2018].

United Nations General Assembly. 2015. *Transforming our World: The 2030 Agenda for Sustainable Development A/RES/70/1*. [Online] Available: http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E. [21 November 2017].

United Nations Global Compact. n.d. *Who We Are*. [Online] Available: <https://www.unglobalcompact.org/what-is-gc>. [2 April 2018].

United Nations Global Compact. 2017. *2017 United Nations Global Compact Progress Report: Business Solutions to Sustainable Development*. [Online] Available: https://www.unglobalcompact.org/docs/publications/UN%20Impact%20Brochure_Concept-FINAL.pdf. [19 December 2017].

United Nations Global Compact. 2018. *Our Participants*. [Online] Available: https://www.unglobalcompact.org/what-is-gc/participants/search?page=5&search%5Bcountries%5D%5B%5D=224&search%5Bkeywords%5D=&search%5Bper_page%5D=10&search%5Bsort_direction%5D=asc&search%5Bsort_field%5D=type&utf8=✓. [2 April 2018].

United Nations in Mongolia. 2017. *UN Mongolia Launches Urban Art on SDGs*. [Online] Available: <https://unitednationsinmongolia.exposure.co/un-mongolia-launches-urban-art-on-sdgs>. [13 January 2018].

United States Council for International Business. 2018. *Measuring our Progress*. [Online] Available: <http://www.businessfor2030.org/progress/>. [25 September 2018].

Vaara, E., Tienari, J. & Irmann, O. 2007. Crafting an international identity: the Nordea case, in Lin, L., Ravisì, D., van Rekom, J., & Soenen, G. (eds.). *Organizational identity in practice*. Abingdon: Routledge. 215–231.

Valor, C. 2005. Corporate social responsibility and corporate citizenship: Towards corporate accountability. *Business and Society Review* 110 (2): 191–212.

van der Heijden, A., Cramer, J. M. & Driessen, P. P. J. 2012. Change agent sensemaking for sustainability in a multinational subsidiary. *Journal of Organizational Change Management* 25 (4): 535–559.

van der Merwe, H. 1996. The research process: Problem statement and research design, in Garbers, J. (ed.). *Effective Research in the Human Sciences – Research Management for Researchers, Supervisors and Master's and Doctoral Candidates*. Pretoria: Van Schaik. 277–291.

van der Rede, L. 2007. Sensemaking and organisational storytelling. Unpublished masters dissertation. Stellenbosch: Stellenbosch University.

Vive. 2017. *VR for Impact: Using Virtual Reality to Drive Positive Impact in Support of the Sustainable Development Goals*. [Online] Available: <https://vrforimpact.com/>. [1 September 2018].

Vough, H. 2012. Not all identifications are created equal: Exploring employee accounts for workgroup, organizational, and professional identification. *Organization Science* 23 (3): 778–800.

Warhurst, A. 2005. Future roles of business in society: The expanding boundaries of corporate responsibility and a compelling case for partnership. *Futures* 37: 151–168.

Watson, T. & Bargiela-Chiappini, F. 1998. Managerial sensemaking and occupational identities in Britain and Italy: The role of management magazines in the process of discursive construction. *Journal of Management Studies* 35 (3): 285–301.

Weick, K. E. 1995. *Sensemaking in Organizations*. Thousand Oaks, California: Sage Publications.

Weick, K. E. 2010. Reflections on enacted sensemaking in the Bhopal disaster. *Journal of Management Studies* 47 (3): 537–550.

Weick, K. E. & Sutcliffe, K. M. 2003. Hospitals as cultures of entrapment: A reanalysis of the Bristol Royal Infirmary. *California Management Review* 45 (2): 73–84.

Weick, K. E., Sutcliffe, K. M. & Obstfeld, D. 2005. Organizing and the process of sensemaking. *Organization Science* 16 (4): 409–421.

Weiss, R. 1994. *Learning from Strangers: The Art and Method of Qualitative Interview Studies*. New York: The Free Press.

Welbourne, D. J. & Grant, W. J. 2016. Science communication on YouTube: Factors that affect channel and video popularity. *Public Understanding of Science* 25 (6): 706–718.

Wells, J. 2013. Earth in the Anthropocene, in Wells, J. (ed.). *Complexity and Sustainability*. London: Routledge. 212–231.

Whiteman, G., Walker, B. & Perego, P. 2013. Planetary boundaries: Ecological foundations for corporate sustainability. *Journal of Management Studies* 50 (2): 307–336.

- Wiederhold, B. 2016. Lessons learned as we begin the third decade of virtual reality. *Cyberpsychology, Behaviour, and Social Networking* 19 (10): 577–578.
- Williams, A. 2003. How to ... Write and analyse a questionnaire. *Journal of Orthodontics* 30: 245–252.
- Wilson, M. 2003. Corporate sustainability: What is it and where does it come from? *Ivey Business Journal* 1: 1–5.
- World Bank. 2018. *Atlas of Sustainable Development Goals 2018: From World Development Indicators*. Washington, DC: World Bank.
- World Commission on Environment and Development. 1987. *Report of the World Commission on Environment and Development: Our Common Future*. [Online] Available: <http://www.un-documents.net/our-common-future.pdf>. [2 December 2017].
- World Economic Forum. 2017. *The Global Risks Report 2017 12th edition*. Geneva: World Economic Forum.
- World Economic Forum. 2018. *The Global Risks Report 2018 13th Edition*. Geneva: World Economic Forum.
- Yin, R. 2011. *Qualitative Research from Start to Finish*. New York: The Guilford Press.
- Zammit, A. 2003. *Development at Risk: Rethinking UN-business Partnerships*. [Online] Available: <https://www2.ohchr.org/english/issues/globalization/business/docs/report5.pdf>. [31 July 2018].
- Zuma, J. 2015. *Statement by President Jacob Zuma, at the 70th Session of the United Nations General Assembly, During the “UN Summit for the Adoption of the Post 2015 Development Agenda”*. [Online] Available: <https://sustainabledevelopment.un.org/content/documents/20838south-africa.pdf>. [27 November 2017].

Appendix A: Online survey questions

I confirm that I have read and understood the information provided in the letter of consent

1. Yes
2. No

I agree to take part in this survey

1. Yes
2. No

Question 1

Which **ONE** statement below best describes your organisation's current engagement with the Sustainable Development Goals (SDGs)?

1. My organisation has fully addressed and integrated relevant SDGs into corporate strategy.
2. My organisation has started to implement plans to address the SDGs.
3. My organisation is developing plans to address the SDGs.
4. My organisation intends to develop plans to address the SDGs.
5. My organisation acknowledges the SDGs but does not intend to develop plans to address them
6. My organisation is not considering the SDGs
7. I am not sure of my organisation's engagement with the SDGs

Question 2.1

Consider a generic process for business engagement with the SDGs as shown below and answer the question that follows



Since the SDGs were adopted in 2015, has your organisation considered the relevance of the SDGs to its strategy?

1. Yes
2. No
3. I am not sure

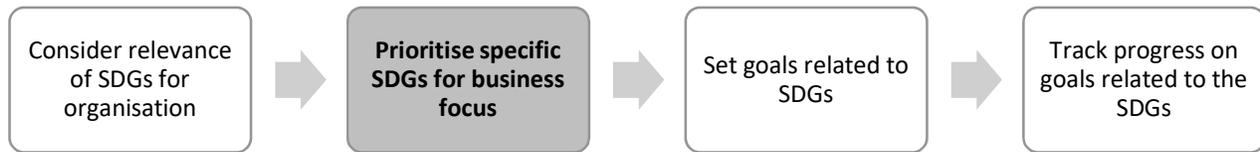
2.2 If yes, please select ONE option per row

How often have the following visuals assisted your organisation in considering the relevance of the SDGs to its strategy?

	Never	Rarely	Sometimes	Often	Always
Illustrations <i>(e.g. pictures, cartoons, icons, paintings)</i>					
Photographs					
Data visualisations <i>(e.g. charts, graphs, infographics, diagrams)</i>					
Moving images <i>(e.g. videos, films, animations)</i>					
3D media <i>(e.g. models, sculptures, 3D displays)</i>					
Other <i>Please specify type and frequency of use:</i>					

Question 3.1

Consider a generic process for business engagement with the SDGs as shown below and answer the question that follows



Since the SDGs were adopted in 2015, has your organisation prioritised specific SDGs on which to focus?

1. Yes
2. No
3. I am not sure

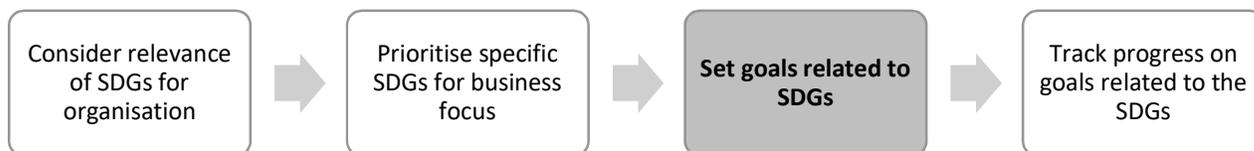
3.2 If yes, please select ONE option per row

How often has your organisation used the following visuals in prioritising specific SDGs on which to focus?

	Never	Rarely	Sometimes	Often	Always
Illustrations <i>(e.g. pictures, cartoons, icons, paintings)</i>					
Photographs					
Data visualisations <i>(e.g. charts, graphs, infographics, diagrams)</i>					
Moving images <i>(e.g. videos, films, animations)</i>					
3D media <i>(e.g. models, sculptures, 3D displays)</i>					
Other <i>Please specify type and frequency of use:</i>					

Question 4.1

Consider a generic process for business engagement with the SDGs as shown below and answer the question that follows



Since the SDGs were adopted in 2015, has your organisation set goals related to the SDGs?

1. Yes
2. No
3. I am not sure

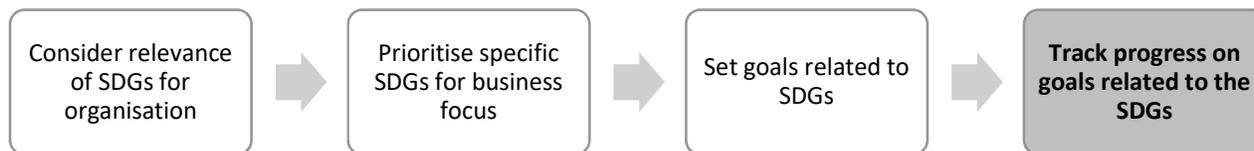
4.2 If yes, please select ONE option per row

How often has your organisation used the following visuals in setting goals related to the SDGs?

	Never	Rarely	Sometimes	Often	Always
Illustrations <i>(e.g. pictures, cartoons, icons, paintings)</i>					
Photographs					
Data visualisations <i>(e.g. charts, graphs, infographics, diagrams)</i>					
Moving images <i>(e.g. videos, films, animations)</i>					
3D media <i>(e.g. models, sculptures, 3D displays)</i>					
Other <i>Please specify type and frequency of use:</i>					

Question 5.1

Consider a generic process for business engagement with the SDGs as shown below and answer the question that follows



Since the SDGs were adopted in 2015, has your organisation tracked progress on goals related to the SDGs?

1. Yes
2. No
3. I am not sure

5.2 If yes, please select ONE option per row

How often has your organisation used the following visuals to track progress on goals related to the SDGs?

	Never	Rarely	Sometimes	Often	Always
Illustrations <i>(e.g. pictures, cartoons, icons, paintings)</i>					
Photographs					
Data visualisations <i>(e.g. charts, graphs, infographics, diagrams)</i>					
Moving images <i>(e.g. videos, films, animations)</i>					
3D media <i>(e.g. models, sculptures, 3D displays)</i>					
Other <i>Please specify type and frequency of use:</i>					

Question 6.1

During your organisation's engagement with the SDGs has it communicated internally (inside the organisation) on the SDGs?

1. Yes
2. No
3. I am not sure

6.2 If yes, please select ONE option per row

How often has your organisation used the following visuals to communicate internally (inside the organisation) on the SDGs?

	Never	Rarely	Sometimes	Often	Always
Illustrations <i>(e.g. pictures, cartoons, icons, paintings)</i>					
Photographs					
Data visualisations <i>(e.g. charts, graphs, infographics, diagrams)</i>					
Moving images <i>(e.g. videos, films, animations)</i>					
3D media <i>(e.g. models, sculptures, 3D displays)</i>					
Other <i>Please specify type and frequency of use:</i>					

Question 7.1

During your organisation's engagement with the SDGs has it communicated externally (outside of the organisation) on the SDGs?

1. Yes
2. No
3. I am not sure

7.2 If yes, please select ONE option per row

How often has your organisation used the following visuals to communicate externally (outside of the organisation) on the SDGs?

	Never	Rarely	Sometimes	Often	Always
Illustrations <i>(e.g. pictures, cartoons, icons, paintings)</i>					
Photographs					
Data visualisations <i>(e.g. charts, graphs, infographics, diagrams)</i>					
Moving images <i>(e.g. videos, films, animations)</i>					
3D media <i>(e.g. models, sculptures, 3D displays)</i>					
Other <i>Please specify type and frequency of use:</i>					

Question 8

Please share any thoughts on the use of visuals in relation to sustainability challenges

Question 9

If you are willing to participate in a 30 to 60-minute interview on visuals and sustainability challenges please leave your name and contact details below

Interviews will provide critical insights for this research and our understanding of communicating sustainability in companies. Your time to support this research would be tremendously valued. Any information shared during the interview and that could possibly identify or be attributed to you or your organisation as a participant will remain confidential

Please provide your name:

Please provide your contact number:

Please provide your email address:

If you would like to receive a copy of my thesis or a summary of the findings when the research is completed, please enter your email address:

Appendix B: Sample interview guide

1. Do you think business has a role to play in achieving the SDGs? What do you think business brings in terms of its contribution to the SDGs?
2. How is your company currently engaging with the SDG?
3. What is the most challenging aspect of the SDGs for your company?
4. Is there pressure to respond to sustainability issues?

5. What is a visual to you?
6. Do you think the visual nature of the SDGs is useful? Why/Why not?

7. How has your company used visuals in the process of engaging with the SDGs?
8. How has your company used visuals in communicating on the SDGs?
9. How does your company's use of visuals on sustainability issues compare to other forms of communication such as written or verbal?
10. How are the types of visuals chosen for use in your reports? Why have visuals been used?
11. What is the role of visuals in the sustainability report?
12. Why has [visual category] been used so often/so rarely?
13. Are different visuals needed for different levels or departments in the organisation?

14. Have you yourself used visuals when trying to make sense of a concept related to sustainability?
15. Do you think sustainability experts can also benefit from the use of visuals?
16. Is there anything about sustainability and the SDGs in particular that make visuals a good way of communicating?
17. Do you think there are any risks with using visuals in relation to sustainability issues?
18. What are the barriers to using visuals to communicate about sustainability issues?
19. What do you think about the role of colour when using visuals?
20. What role do you think visuals play in relation to emotion?
21. Do you think visuals can be used badly? How?

22. What did you think when you first heard about this topic – looking at the role of visuals in how organisations make sense of the SDGs?

Appendix C: Quantitative survey responses

Question 1

	Number of companies
My organisation has fully addressed and integrated relevant SDGs into corporate strategy.	1
My organisation has started to implement plans to address the SDGs.	13
My organisation is developing plans to address the SDGs.	10
My organisation intends to develop plans to address the SDGs.	7
My organisation acknowledges the SDGs but does not intend to develop plans to address them.	1
My organisation is not considering the SDGs.	0
I am not sure of my organisation's engagement with the SDGs.	0
	n=32

Question 2.1

	Number of companies
Yes	30
No	1
I am not sure	1

Question 2.2

Percentage (%) companies normalised						
		Illustrations	Photographs	Data Visualisation	Moving Images	3D Media
Relevance (n=30)	Never	7	27	0	33	63
	Rarely	23	20	10	30	30
	Sometimes	37	23	20	33	7
	Often	27	20	50	3	0
	Always	7	10	20	0	0

Question 3.1

	Number of companies
Yes	23
No	8
I am not sure	1

Question 3.2

Percentage (%) companies normalised						
Prioritise (n=23)		Illustrations	Photographs	Data Visualisation	Moving Images	3D Media
	Never	4	35	4	30	57
	Rarely	17	22	4	39	43
	Sometimes	43	22	30	26	0
	Often	26	13	39	4	0
	Always	9	9	22	0	0

Question 4.1

	Number of companies
Yes	15
No	16
I am not sure	1

Question 4.2

Percentage (%) companies normalised						
Set goals (n=15)		Illustrations	Photographs	Data Visualisation	Moving Images	3D Media
	Never	13	20	0	33	53
	Rarely	20	33	0	40	40
	Sometimes	33	33	40	20	7
	Often	20	7	40	7	0
	Always	13	7	20	0	0

Question 5.1

	Number of companies
Yes	14
No	16
I am not sure	2

Question 5.2

Percentage (%) companies normalised						
Track progress (n=14)		Illustrations	Photographs	Data Visualisation	Moving Images	3D Media
	Never	14	21	7	57	64
	Rarely	7	14	7	14	14
	Sometimes	50	43	36	21	21
	Often	21	7	14	0	0
	Always	7	14	36	7	0

Question 6.1

	Number of companies
Yes	24
No	7
I am not sure	1

Question 6.2

Percentage (%) companies normalised						
Internal Communication (n=24)		Illustrations	Photographs	Data Visualisation	Moving Images	3D Media
	Never	13	25	4	50	67
	Rarely	13	25	17	29	25
	Sometimes	21	29	21	13	4
	Often	38	13	38	8	4
	Always	17	8	21	0	0

Question 7.1

	Number of companies
Yes	24
No	6
I am not sure	2

Question 7.2

Percentage (%) companies normalised						
External Communication (n=24)		Illustrations	Photographs	Data Visualisation	Moving Images	3D Media
	Never	4	33	13	54	67
	Rarely	25	17	4	33	29
	Sometimes	13	25	29	8	4
	Often	46	21	38	4	0
	Always	13	4	17	0	0