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CLIMATE CHANGE

A PLANET IN PERIL?
WE ASK YUVAL NOAH HARARI...

SA'S ECONOMY TAKING STRAIN:
GIBS' PROF. ADRIAN SAVILLE

HYBRIDS, ELECTRIC VEHICLES
CAN THEY WORK IN SA?

TINY HOMES & HEMPCRETE VS. BIG BUILDINGS & INVESTORS

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BUSINESS THINKING MEETS BUSINESS ACTION

GIBS acumen
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Dean's Note

BY PROFESSOR MORRIS MTHOMBENI

Will the climate leaders stand up?

Professor Morris Mthombeni

After years of prevarication around the issue of climate change, the general consensus among leaders in business, society and government is that the world is facing "one of the greatest ecological and social challenges of the 21st century" as a result of human activities.

As one of the founding deans of the PRME Business Schools for Climate Leadership Africa, a United Nations-supported initiative, I know that this is truly a subject that is entwined in the ethos of our school. That said, it is not a quick – or easy – fix.

To quote Professor Thomas Dietz et al, the factors contributing to climate change are complex, requiring diverse and innovative solutions. As Dietz et al point out, business practices are increasingly coming to the fore as a means of responding to the challenge, alongside political action and corporate governance. Such is the realisation that business has an important role to play, that currently "more than 70% of the largest corporations in the United States participate in the Carbon Disclosure Project, which calls for corporations to publicly report their greenhouse gas emissions".

There is also a growing awareness that dynamic capabilities, which include the ability to adapt, seize opportunities and "integrate, build, and reconfigure internal and external competences of address rapidly changing environments" are part and parcel of the new way of doing business.

Recognising the complexity of the task ahead, many companies are focusing more seriously on the importance of collective action and collaboration. This trend is drawing attention to the type of leadership needed to accept, address and direct change when it comes to climate adaptation. Many of these traits focus on a systemic approach to leadership which recognises the need to share information and resources "among a network of actors", to "take into account the relevance of the interactions between social and ecological systems", "increase adaptive capacity (adaptability) of governance networks concerned with climate adaptation" and, finally, according to Dutch academics Sander Meijerink and Sabina Stiller, to help influence policy.

What does a climate-aware leader look like?

South Africa is alive with strong examples of CEOs who are having a profound impact on their business sector and society as a whole. We know who these big names are: they include the likes of Toyota SA's Andrew Kirby (the 2022 Business Leader of the Year, according to the *Sunday Times* Top 100 Companies Awards), Transnet's Portia Derby, Discovery's Adrian Gore, and Standard Bank's Sim Tshabalala. But do we know which CEOs are driving climate leadership?

Investec's Fani Titi, for instance, is acknowledged locally and internationally as a leader at the intersection of business, society and the environment space. Likewise, Mike Brown and the team from Nedbank continue to be committed to their positioning as the "green bank". Then there is Shameel Joosub of Vodacom, who advised Bronwyn Nielsen during COP27, "We as a corporate need to do our part in terms of reducing our emissions and in terms of moving towards net zero; and we've made clear commitments in that regard that we'll reduce our GHG emissions by 50% by 2025 and try to source, by 2025, 100% of our electricity from renewables."

But Joosub sees a bigger role for corporates in improving the planet through technology and innovations, through collaboration and shared commitments. For this approach to really gain traction, businesses will need to both lead and follow.

Leaders who listen

The real superstars laying out the terms of engagement and providing much-needed direction in what is a complex ecosystem of systemic impacts are the scientists. As Norwegian academic Torbjørn Gundersen and colleagues explain, "Public trust in science is crucial to a well-functioning democracy and good governance." While the scientific evidence that have been put forward since the 1960s continues to garner mixed views, in 2021 a global survey showed that 68% of respondents "would trust what scientists say about the environment, a great deal – a more than 10 percentage point increase from 2020 levels", explained Gundersen.

We saw during the Covid-19 pandemic how experts such as Professors Salim Abdool Karim, Tulio de Oliveira and Helen Rees rose to prominence, alongside scientists such as Dr. Angelique Coetzee. Yet, and despite decades of debate around climate change and its implications, do we know which scientists we should be listening to?

While most of us have heard of the young environmental activist Greta Thunberg (who is not a scientist), few could pick more than a handful of names out of Reuters' 1 000 most influential climate scientists list, which includes names like Keywan Riahi, Anthony Leiserowitz, Pierre Friedlingstein, Detlef van Vuuren and James Hansen.

There are South Africans in this list too, namely Chris Reason and Mark New from UCT, Guy Midgley from Stellenbosch University,

Despite decades of debate around climate change and its implications, do we know which scientists we should be listening to?

Climate change is not a conversation for businesspeople alone.

and Mark Jury at the University of Zululand. Other names that spring to mind include water expert Dr. Anthony Turton and the late Ndoni Mcunu, a climate change scientist and advocate for developing women in science and research across Africa. The work of University of Pretoria Professor Emma Archer on the impact on climate change on agriculture and wildlife in the Karoo also stands out, as do experts such as Professor Hannes Rautenbach and Dr. Jane Olwoch.

As was the case with Covid-19, climate change is not a conversation for businesspeople alone – although, as my Stellenbosch Business School colleague Mark Smith recently wrote, business schools will be a source of "many of the key skills needed to address climate change, including specific skills for managing risk, climate change consequences and sustainable innovation". Any meaningful debate must include scientists and civil society representatives. Climate leadership is an approach that hinges on collaboration and exercising care in who to listen to, who to partner with and where to seek inspiration. It's about bringing climate champions and climate leaders together, along with the hidden climate champions such as NGOs – the Wildlife and Environment Society of South Africa, Centre for Environmental Rights and World Wide Fund for Nature South Africa come to mind.

By highlighting these individuals and institutions, it is our hope that we will encourage South African business leaders to connect with climate champions and fellow climate leaders to share fresh ideas and best practice in this evolving space. By raising awareness, driving engagement and activity, and amplifying the importance of incorporating climate risk mitigation into the role of both manager and leader, there is more chance that we'll have more Fani Titis, Mike Browns, and Sim Tshabalalas in the future. Leaders who appreciate the world of known unknowns and unknown unknowns they inhabit and how to make the right trade-offs. GIBS

GIBS Network

Our regular look at GIBS' events and guests

Saving Whistleblowers, Saving South Africa

Emeritus Justice Sisi Khampepe and Rabbi Gideon Pogrund

"If we can save our whistleblowers, I am convinced that we can save South Africa," Emeritus Justice Sisi Khampepe, Chancellor of the University of Pretoria and former Constitutional Court judge, told a recent GIBS Centre for Business Ethics forum.

"Courage without support is a lonely and often ineffective endeavour," she added, acknowledging the precarious position in which those who speak out about corruption often find themselves.

After a career spanning four decades in the legal field, 12 of which were spent at the Constitutional Court, "I can conclude the rot is pervasive," Khampepe said. "There is a tide of corruption, extending from every level of government, from regional departments to small municipalities, in a brazen tango with corporate partners."

"The focus for many years has been on the attainment of a democratic society. We have achieved that. Now, the fight is to defend our Constitution."

"We owe a debt of gratitude to whistleblowers, and it is vital that we let them know they are not alone and that we appreciate and support them," Prof Tawana Kupe, the Vice-Chancellor of the University of Pretoria, said in his address to the forum.

"Corrupt conduct has become institutionalised, and wrongdoing seems to pay. The decision to become a whistleblower must be one of the hardest a person can make. Many fear losing their livelihood, and their concerns are not misplaced," he added.

Support

Supporting whistleblowers and encouraging speak-out cultures in organisations and society is crucial, Rabbi Gideon Pogrund, the founding director of the GIBS Centre for Business Ethics, said.

"Blindly following leaders is deeply dangerous. Society needs a culture of dissent from people who are brave, independent and critical and who have the intellectual and moral capacity to actively challenge leaders and hold them to account. Ethical and effective leadership depends upon this, as does the success of our country's future.

"Whistleblowers, as we all know, often pay a terrible price for speaking out and the need to support them is urgent," Pogrund added.

Cynthia Stimpel, who blew the whistle on wrongdoing at national carrier SAA, and who is now the executive director of Whistleblower House, said becoming a whistleblower is "a lonely journey. You don't decide to be a whistleblower. You don't expect to be suspended, to be pushed aside. The experience is harsh, and I don't wish it on anyone. However, we need to encourage them, otherwise how else can we get rid of corruption?"


Prof. Tawana Kupe


Cynthia Stimpel

Awakened... To My True Self by Nonkululeko Gobodo

Nonkululeko Gobodo

A full house listened avidly as South Africa's first black female chartered accountant Nonkululeko Gobodo shared insights from her new book *Awakened... To My True Self.*

Introduced by broadcaster Clement Manyathela, the veteran businesswoman said the book had a number of themes, including healing, issues of gender and race, as well as her passions, business and leadership.

"I want young people to know that life is full of up and downs, but you can rise up again, and rebuild again," Gobodo said in her brief opening remarks.

Manyathela asked whether she had discovered her love for accounting when she was working as a bookkeeper at her parents' panelbeating business?

"Yes," she replied, "the auditors would come in and look at the books and I discovered that the audit company was owned by a black person – Professor Wiseman Nkuhlu." (Prof. Nkuhlu is former Chancellor of the Univerity of Pretoria.)

Gobodo has a string of firsts behind her name, including founding South Africa's biggest black-owned accounting firm. Manyathela wondered if that had put additional pressure on her?

"We grew up in a society where we were told there were things we couldn't accomplish," Gobodo responded. "That was always at the back of my mind. I had to prove that there was nothing I could not do. So it became the theme behind everything that I did, that I can't fail."

"There are all these young ones coming after us, so if, as black women, we don't make it, then they lose hope. So it was a lot of pressure," she said.

Playing into the Future

The PSL Player Transition Programme graduation ceremony took place at GIBS in mid-November last year. The course, designed by GIBS in partnership with MultiChoice, was introduced earlier in the year to equip Premier Soccer League players with the necessary knowledge and skills to find careers off and beyond the field after they retire. Kaizer Chiefs and Bafana Bafana skipper and goalkeeper Itumeleng Khune, Orlando Pirates playmaker Vincent Pule, Kennedy Mweene from Mamelodi Sundowns and other players received their certificates from PSL chairperson Dr. Irvin Khoza at their graduation. Dr. Khoza, MultiChoice South Africa executives and family members of the graduates attended the occasion. Despite their glamorous lifestyles and high salaries, soccer players have had a history of failing to navigate financial obstacles during their short careers. The press is often filled with stories of once-successful players who are now destitute. The lack of financial and business skills renders some of the most talented players broke after retirement. The transition programme is a custom-made six-month course aimed at empowering soccer players with the right business and financial skills to help them find careers off the field after they retire. A total of 64 soccer players from the 16 PSL clubs enrolled in the first phase of the programme. At the opening of the programme, Khoza advised players on the importance of using strategies off the field that have been learnt on the field, and to be prepared for any eventuality. "After soccer careers come to an end, many professional players find themselves destitute due to lack of financial management knowledge." He emphasised that while soccer gave players a great headstart, life after a football career was just as important. "GIBS brings about the formal part that orientates the player through the singular lens of football and will be beneficial to the players." Khoza also added that with the programme's backing, soccer players also had a greater chance of entering into administrative roles in the football fraternity. The programme is a legacy project for MultiChoice and is scheduled to run for three years – this graduation being the conclusion of the first year.


Ithumeleng Khune


Linda Onassis Mntambo and wife

Pertunia Sibanyoni and Richard Mukheibir

Risk and Rewards: The Future of Franchising in South Africa

Statistics from the Franchise Association of South Africa (Fasa) estimate that the country's franchise industry contributes around 15% (R721 billion) to South Africa's gross domestic product (GDP). South Africa's economic output from franchising as a proportion of GDP is in the top five in the world.

The franchise economy extends to nearly every industry sector, including fast food, restaurants, offices, health and beauty, childcare and education. There is a significant presence of international franchise brands in South Africa, exposing the country to global best practice as well as allowing international brands an avenue to enter the local market.

Pertunia Sibanyoni, the CEO of InspectaCar Wesbank and chairperson of Fasa, told a recent GIBS forum that owning a franchise provides immediate brand equity and economies of scale and allows owners to replicate brand experience.

Franchising offers a proven business model and entrenched support structures for new business owners.

Empowerment

"The franchising business model is relatively simple and is a fantastic empowerment vehicle," Richard Mukheibir, CEO of Cash Converters, told the forum. "South Africa should be promoting franchising as a business model to build the economy."

Harry Nicolaides, CEO of property franchise Century 21 South Africa, argued the franchising model is safe for new entrants and the benefits of joining "are enormous."

It can be extremely difficult for individual business owners to find premises, negotiate with landlords and gain access to business financing. Franchising offers a secure business plan, support and marketing.

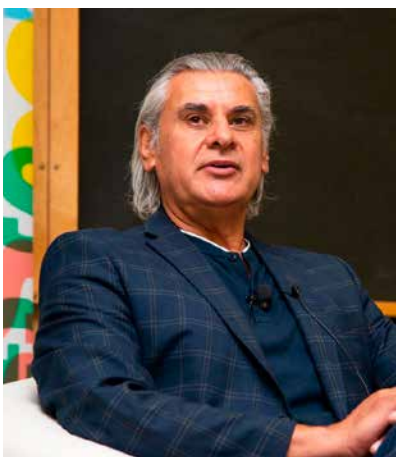
While the royalty or service fees of buying into a franchise can be expensive, Nicolaidis advised those considering buying a business to analyse the costs they would incur as an independent operator for marketing, human resources and branding. "It is safer and more economical to join an established brand," he said.

Laurette Pienaar

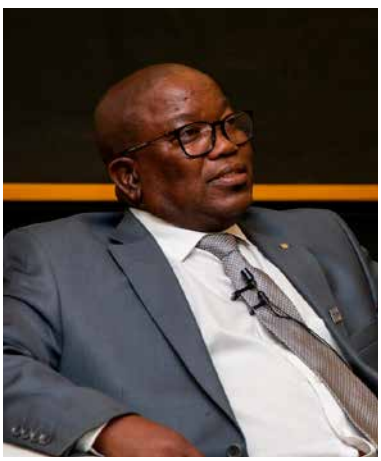
CEO of Fasa Fred Makgato said that while there may be high barriers to entry for franchisees, "you are buying into a known business".

Royalties, gearing and working capital are some of the considerations franchisees need to take into account for financing their business.

Franchise specialist at Capitec Bank Laurette Pienaar said she aims to build competitive value propositions and build unique solutions for each franchisee that approaches her for funding. "We take into account affordability and cost structures, as we don't want to choke the the business from day one with loans."



Harry Nicolaides



Fred Makgato

Further advice from the panel for potential franchisees included:

- Make sure you partner with the right brands.
- Do proper research.
- Speak to existing franchisees to gain an honest viewpoint.
- Look for value set and compatibility as you are entering into a long-term relationship.
- Make sure you understand the sector that you are going into. GIBS

PROF. ADRIAN SAVILLE

Prof. Adrian Saville holds a professorship in economics, finance and strategy at GIBS, where he is the founding director of the Centre for African Management and Markets. He is the author of the Visa Africa Integration Index (2012-2020) and the Investec GIBS Savings Index (2015-2020), and has worked in many markets, from Brazil to Singapore. Adrian has a long and distinguished career in investment and asset management spanning more than 25 years. He is an investment specialist at multi-family investment office Genera Capital, where he runs a multi-asset investment portfolio alongside a special opportunities portfolio.

BY PROF. ADRIAN SAVILLE

Beyond the Thunderdome

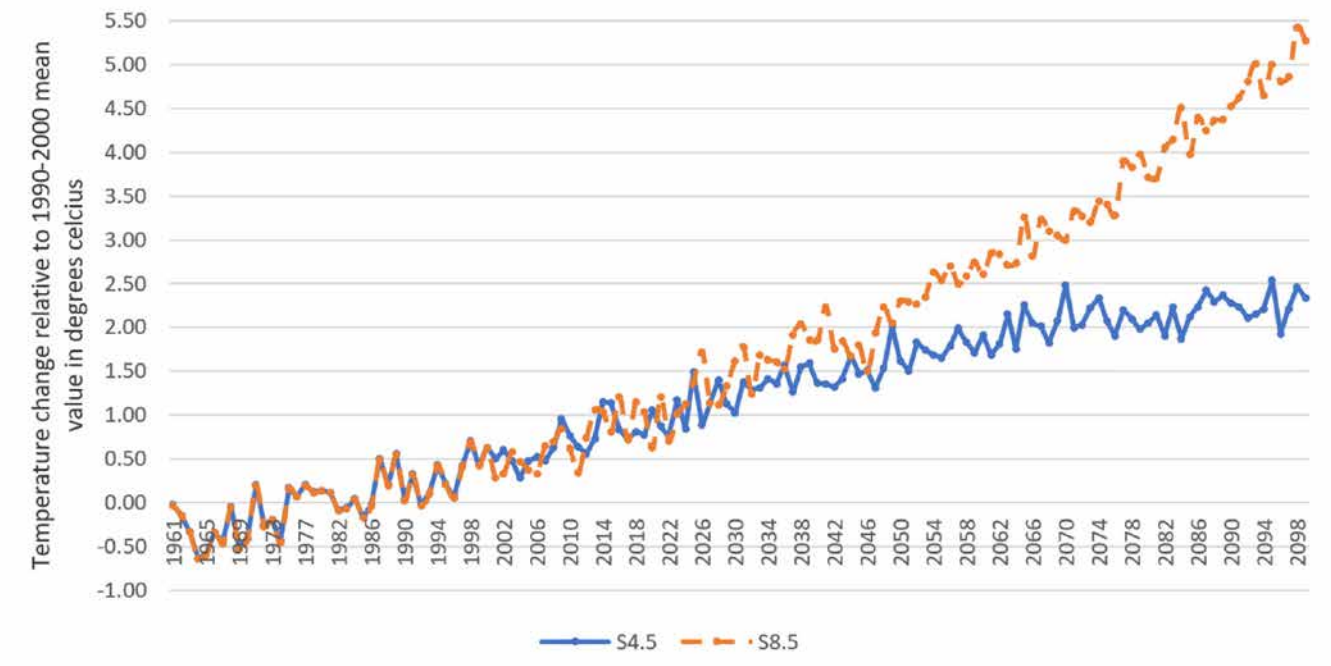
South Africa is highly exposed and vulnerable to the effects of climate change. Just consider the human and economic cost of the 2022 KwaZulu-Natal floods or the City of Cape Town's 'day zero' water crisis of 2018. Are these one-off events that our economy can shrug off? Or are we more vulnerable and less prepared than we realise?

Research papers, expert modelling and scientific insight out of the 2022 COP27 climate change conference in Egypt point to one seemingly inescapable reality: humankind has missed the boat on effectively reducing greenhouse gas emissions to mitigate the impact of climate change.

Let that sink in.

Even if we all agree on the science and the remedy (which looks unlikely, given the entrenched political stances), and even if governments don't put a foot wrong in future, global temperatures are poised to burst through the critical 1.5% barrier, mushrooming to the tune of between 2% and 5% by 2100, according to some models (see Image 1).

Image 1: Temperature change modelling



S4.5 – High climate change mitigation scenario / S8.5 – Low climate change mitigation scenario

Source: Nicholas Ngepah, Charles Djemo and Charles Saba: 'Forecasting the Economic Growth Impacts of Climate Change in South Africa in the 2030 and 2050 Horizons', *Sustainability* 2022, 14, 8299.

What does this actually mean?

According to Ca' Foscari University of Venice and RFF-CMCC European Institute on Economics and the Environment, the impact of climate change on the availability of labour and on productivity could cost South Africa up to 11% of GDP per capita by end-2100. This could spell both good news and bad news for social issues. For instance, in the case of gender inequality, wages may be driven up due to a reduced availability of low-skilled workers, thereby narrowing the gender pay gap. However, climate change could also make it harder for women – particularly rural women – to undertake outside work, because of their greater vulnerability to thermal stress.

These social impacts alone should underline the fundamental importance of mitigating policies and recognising that we are not only talking about economies shrinking or industries being impacted. Climate impacts come with a range of disparate geographical and demographic impacts, such as the potential gender impact highlighted above.

Of course, there will be economic implications. Regrettably, however, when one goes digging for insights into the sectoral impact of climate change on the South African economy it becomes evident that almost no work has been done. Where research exists, it approaches the conundrum from the perspective of temperature changes alone and does not consider other important impacts such as precipitation patterns. An exception is a remarkable piece of work by Nicholas Ngepah, Charles Djemo and Charles Saba from the University of Johannesburg.

We are entering apocalyptic 'Mad Max' territory.

Taking a 2030 and 2050 horizon Ngepah, Djemo and Saba adopt a novel outlook that considers the impact of leaving things alone or driving effective mitigation. The authors incorporate precipitation alongside temperature change and, as a way of considering industrial impacts, look at regional impacts, including provinces and municipalities, alongside industrial impact. This combination makes for a powerful – if chilling – piece of research.

To quote directly from the paper: "Various sector-specific studies around the world and in South Africa suggest climate change has significant effects on agriculture, ocean fisheries, access to fresh water, migration, tourism and other factors. However, there is less emphasis on climate change's direct link to economic growth, especially productivity. Ultimately, temperature changes can affect human capital through health, crime and conflict. Extreme events can also erode physical infrastructure, all of which affect economic activities directly or indirectly."

The following comment is worth highlighting: "Most of South Africa's productive sectors have significant exposure to climate risks."

Certainly, as the findings indicate (see Table 1), agriculture, forestry and fishing collectively make up less than 3% of value add for the South African economy. But beyond these direct impacts are a host of other considerations, ranging from the implications for inequality and gender, as well as perverse and less obvious effects, such as labour shortages and the earning power of rural women. Within considerations around labour and productivity lie notable risks for sectors that add significant value to our national economy, notably manufacturing and services.

The Solow Model of economic growth posits that there are three drivers of structural economic growth: labour force participation, productivity and population growth. Each of these components is likely to be harmed as a result of second-order impacts of climate change. Considering the South African situation in greater detail:

- **Labour force participation**
  South Africa has shrinking labour force participation because of its workforce structure, which is declining by about 0.5% each year.
- **Productivity**
  Ngepah et al suggest that the negative impact of climate change on productivity in South Africa could be as much as 10%.
- **Population growth**
  South Africa's population growth is around 1.2%, just behind the Organisation for Economic Co-operation and Development's (OECD's) projected GDP growth rate of 1.8% and 1.3% for 2022 and 2023, respectively. This means the economy is already growing too slowly to support the number of new entrants – even before GDP takes that potential 11% hit from climate change.

Put these all together and we are already staring down the prospect of a less productive economy, with higher exclusion and more pronounced inequality in a country already regarded as being the most unequal in the world with among the highest unemployment rate globally.

Table 1: South Africa's economic structure by value addition

RANKING 2019 (2018)	1993–1999	2004–2000	2005–2009	2010–2014
Agriculture	2.48%	2.36%	2.12%	2.19%
Forestry	0.46%	0.44%	0.42%	0.43%
Fishery	0.15%	0.12%	0.11%	0.13%
Mining	14.96%	12.96%	10.58%	8.74%
Manufacturing	15.90%	16.21%	15.88%	15.09%
Electricity and gas	2.60%	2.41%	2.37%	2.08%
Water	0.81%	0.68%	0.60%	0.64%
Services	62.65%	64.82%	67.91%	70.70%
Total value-added (USD Billions)	696.892	603.135	738.774	802.235

Source: Nicholas Ngepah, Charles Djemo and Charles Saba: 'Forecasting the Economic Growth Impacts of Climate Change in South Africa in the 2030 and 2050 Horizons', *Sustainability* 2022, 14, 8299.

'Most of South Africa's productive sectors have significant exposure to climate risks.'

Measuring the financial toll

Moving from GDP impacts to on-the-ground losses, Ngepah et al offer a national-level overview, then a provincial breakdown and, finally, a municipal and, as noted, an industrial sector focus.

The main sectors they identify as having the highest percentage losses as a result of a combination of reduced rainfall and higher temperatures are electricity, gas, forestry, fishing and agriculture. Keeping in mind that these are very small sectors, the losses in these sectors could range between 7% and 13% if nothing is done, or 6%-10% if mitigation efforts are put in place. The manufacturing sector will likely lose 2%, while the services and mining sectors are

expected to contract by even more – although, in some instances, mining may actually benefit as a result of early mitigation actions together with being located in water-plentiful regions. The authors, who recommend collaboration between mining groups and the Department of Mineral Resources and Energy in order to affect a meaningful industry-wide response, note, "The typical response to climate change among mining companies should be one that enhances energy efficiency, secures water sources and restructures portfolios to exit commodities (most notably coal) that negatively impact the environment."

At a provincial level, the likes of Limpopo – with its high exposure to agriculture, forestry, fishing, electricity and gas – would be the most damaged. Similarly, Mpumalanga will feel the effects of economic losses in agriculture, forestry, fishery, electricity and gas. According to Ngepah et al, the "greatest negative impact is in the forestry subsectors in the Blouberg and Ephraim Mogale municipalities in Limpopo, with 50% and 48% losses" for the best-case, mitigation scenario. This would signal economic collapse.

Conversely, some municipalities should experience positive effects from the climate change impact, largely due to water and mining. As Ngepah et al explain: "In KwaZulu-Natal, Mfolozi has the highest gains in the water sector, followed by Ulundi, Mtubatuba and Hlabisa. A number of municipalities in Limpopo are also projected to experience positive effects in the water sector, namely, Ephraim Mogale and Mutale. In Mpumalanga, the most significant positive effects are all in the mining sector for Mskahlgwa, Albert Luthuli, Thembisile, Dr. JS Moroka, Thaba Chweu, Mkhondo, Lekwa and Bushbuckridge."

What does this mean for internal migration? What does it mean for water scarcity in cities such as Johannesburg, where rising acid water levels and failing treatment plants are already putting aquifers in danger of contamination? And what does it say about our readiness to face these threats?

I believe we could be talking renewable investment inflows of about R100 billion a year over the next decade.

At a readiness ranking of 112, South Africa is woefully underprepared.

Vulnerability vs readiness

How the South African economy copes in the face of climate change challenges depends on our adaptation readiness.

It's both obvious and unfortunate that the countries that are most at risk from climate change are the poorest. The Notre Dame Global Adaptation Initiative (ND-GAIN) Country Index is an opensource framework that shows a country's current vulnerability to climate disruptions. It also looks at how ready countries are to protect and defend themselves in the face of these challenges. Using 45 core indicators, the index ranks 182 countries on vulnerability and 184 on readiness. According to ND-GAIN, 17 of the 25 most vulnerable countries are in Africa. This includes the likes of Chad, Central African Republic, Guinea-Bissau, Eritrea, the Democratic Republic of Congo, Sudan and Niger.

In an October 2022 alert from ND-GAIN, following the devastating flooding in KwaZulu-Natal in April 2022, South Africa is now ranked the 100th-most vulnerable country out of 182. This puts South Africa firmly in amber territory and on the vulnerable side of the spectrum.

Some of our neighbours are even more vulnerable. Mozambique ranks at 156, Botswana 116, Namibia 120, Zimbabwe 158, Zambia 140 and Malawi 157. By these metrics, not only is South Africa vulnerable, but it's in an even more at-risk neighbourhood. That poses some very specific considerations for South Africa around the migration of people, but also the readiness of the region to survive the inevitable onslaught. While a country like Japan is also particularly vulnerable, it ranks extremely highly in terms of readiness. South Africa and her neighbours do not. In fact, at a readiness ranking of 112, South Africa is woefully underprepared to deal with this threat. Similarly, Malawi is at 160, Zimbabwe 187, Botswana 86, Zambia 143 and Namibia 109.

ND-GAIN is not alone in sounding this call. Another important piece of work comes from David Eckstein, Vera Künzel and Laura Schäfer. Their Global Climate Risk Index measures the damage being inflicted on countries by climate change. The ten most affected countries in 2019 included three of South Africa's immediate neighbours: Mozambique, Zimbabwe and Malawi (see Table 2). While over a ten-year period the assessment for the region is less damning – with the exception of Mozambique – this does not change the fact that we are incredibly vulnerable and notably unprepared as a region.

Table 2: The most-affected countries due to climate change in 2019

RANKING 2019 (2018)	COUNTRY	CRI SCORE	FATALITIES	FATALITIES PER 100 000 INHABITANTS	ABSOLUTE LOSSES (IN MILLION US$ PPP)	LOSSES PER UNIT GDP IN %	HUMAN DEVELOPMENT INDEX 2020 RANKING14
1 (54)	Mozambique	2.67	700	2.25	4 930.08	12.16	181
2 (132)	Zimbabwe	6.17	347	2.33	1 836.82	4.26	150
3 (135)	The Bahamas	6.50	56	14.70	4 758.21	31.59	58
4 (1)	Japan	14.50	290	0.23	28 899.79	0.53	19
5 (93)	Malawi	15.17	95	0.47	452.14	2.22	174
6 (24)	Islamic Republic of Afghanistan	16.00	191	0.51	548.73	0.67	169
7 (5)	India	16.67	2 267	0.17	68 812.35	0.72	131
8 (133)	South Sudan	17.33	185	1.38	85.86	0.74	185
9 (27)	Niger	18.17	117	0.50	219.58	0.74	189
10 (59)	Bolivia	19.67	33	0.29	798.91	0.76	107

PPP = Purchasing Power Parities. GDP = Gross Domestic Product.
Source: Global Climate Risk Index 2021

Back to the betting table

Considering the sectoral projections, issues of vulnerability and readiness, and the inevitable impact on human capital and social cohesiveness, it is fair to say that the entire South African economy is at risk from climate change impacts.

As an economy still heavily dependent on coal, and trapped in rhetoric and continued resistance to shifting that dial, it is clear first and foremost that we need to address our energy base.

Encouragingly, we've seen some businesses making interesting, early moves into the renewable space. Coal-fired energy group Seriti Resources is a case in point, having acquired a majority stake in wind and solar-focused Windlab Africa in August 2022. The likes of Shoprite, Anglo American and Sibanye-Stillwater also are moving heavily into renewable self-generation.

South Africa's renewable framework is increasingly aligning to this reality, particularly since early 2022, when President Cyril Ramaphosa lifted the cap on private power generation. If we continue on this trajectory, I believe we could be talking renewable investment inflows of about R100 billion a year over the next decade. That's a massive stimulus to the economy with high multiplier impacts and material, positive spill-over effects. It would also usher in a new energy regime that is substantially lower cost, and that would inject a wave of competitiveness into the economy.

From a geographic and radiation perspective, South Africa has an enviable natural competitive advantage when it comes to solar energy production, in particular. In spite of some initial own goals, policy has caught up and this could now point to a victory in the making. However, these gains will be wiped out in a second if we do not heed the warnings of future strategies and researchers and prepare ourselves for considerable local and regional shifts in the decade to come.

ESG talking point

According to a survey of South African organisations by professional services firm PwC, 80% of companies polled had not yet made a commitment in terms of their environmental, social and governance (ESG) policies to achieve net-zero emissions – in line with accepted climate change mitigation thinking. While 28% of CEOs globally have made such a commitment, only 20% of leaders in South Africa had done so, noted the Global CEO Survey.

Given the research shared in this article, it is clear that South Africa is precariously positioned to deal with its vulnerabilities from a climate change perspective. Undoubtedly, the environmental impact of climate change on the South African economy will be felt with key rural sectors like agriculture and forestry being hard hit. However, the social impact – from inequality to gender and migration – will have far-reaching effects on communities and families. Governance, in the form of internal sustainability policies and industry compliance, already exist in many of the core industries that make up the South African economy. And yet commitment and action appear to be lacking to the extent that real change – with an iota of a chance to mitigate against industry and economic impacts – is put into play before 'Mad Max' territory is inevitable.

Place your bets...

When it comes to making hard choices in seemingly impossible situations, there is no better resource than the work of professional poker player-turned-decision strategist Annie Duke, whose best-selling book, *Thinking in Bets: Making Smarter Decisions When You Don't Have All the Facts*, explains how to make 'better bets' in a pressure-cooker world.

If we apply Duke's thinking, then the probability of an 'easy' solution to the climate change problem – be it geo-engineering efforts to slow global warming or moving people en masse to Mars – is likely very low. Equally low is the probability of being able to meaningfully change planet-wide behaviours to ensure we don't overshoot the widely proposed 1.5 degree temperature threshold.

This leaves us with the reality that climate change has been politicised to the point that action has been derailed. Even in high-mitigation scenarios – where we do everything right from now on – severe impacts at a global, regional and national level are inevitable.

How would you bet on South Africa's economy? The odds don't look good. GIBS

Part of Caversham Road in Pinetown, Durban was washed away on 12 April 2022 during floods that caused large-scale damage and loss of life in KwaZulu-Natal.

IMAGE Getty Images

BY CARA BOUWER

Risk Mitigation Amid Mega Climate Catastrophes

The insurance sector is on the receiving end of climate change-related impacts, both financial and those affecting people and livelihoods. Many insurers are now building risk mitigation into their business models, and so should companies and countries.

In recent years the world has witnessed a rising number of mega weather disasters. Professional services firm AON catalogued these in its 2021 Weather, Climate and Catastrophe Insight report, which referenced the likes of Hurricane Ida in the US, which incurred an estimated economic loss of $75.3 billion; the Haiti earthquake ($1.6 billion loss); flooding across Western and Central Europe ($13 billion loss); the Table Mountain wildfire in Cape Town, which destroyed several buildings on the University of Cape Town campus (loss unspecified); as well as seasonal flooding in China ($30 billion loss) and India ($8 billion).

Natural disaster events and loss trends (2021)

Date(s)	Event	Location	Deaths	Economic Loss (USD billion)	Insured Loss (USD billion)
08/27 – 09/02	Hurricane Ida U.S	Caribbean	96	75.3	36.0
07/12 – 07/18	Flooding	Western & Central Europe	227	45.6	13.0
06/01 – 09/30	Seasonal Floods	China	545	30.0	2.1
02/12 – 02/20	Winter Weather (Freeze)	U.S., Mexico	235	25.0	15.0
01/01 – 12/31	Drought	United States	-	9.0	4.3
02/13 – 02/13	Fukushima Earthquake	Japan	1	8.0	2.5
04/05 – 04/08	Winter Weather	Western & Central Europe	-	5.6	0.4
12/10 – 12/12	Severe Weather	United States	93	5.1	4.0
06/17 – 06/25	Severe Weather	Western & Central Europe	7	4.9	3.5
01/01 – 12/31	Drought	Brazil	-	4.3	0.1
		All other events	~9,500	~130 billion	~49 billion
		TOTALS	~10,500	343 billion	130 billion

Source: AON (2021 Weather, Climate and Catastrophe Insight)

Here at home, KwaZulu-Natal and the Eastern Cape also faced heavy flooding and landslides in April 2022, which took the lives of 448 people, destroyed more than 12 000 homes and caused infrastructure damage of around R12 billion. Speaking to Daily Maverick, Old Mutual Insure's head of retail, Soul Abraham, called the floods "the biggest natural disaster to have happened to the insurance industry" since the Knysna fires in 2017. The Knysna disaster resulted in some R7 billion in insurance claims.

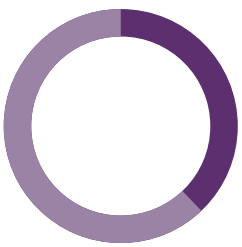
As a result of natural disasters like these, a 2022 Capgemini and Efma World Property and Casualty Insurance Report notes a 3.6-time increase in insured losses and a 2.5x hike in non-insured losses over the past three decades. They noted that climate change was a "looming concern" for insurers, but also an opportunity.

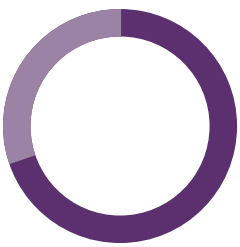
The biggest risk that has already materialised is energy.

By the numbers: The economic impact of climate change

Economic Loss
$343 billion
27% above the 21st Century average

Insured Loss
Germany, Belgium
$130 billion
76% above the 21st Century average





62%
Global Protection Gap

71%
of global insured losses were recorded in the United States

50
billion-dollar economic loss events (4th highest on record)

20
billion-dollar insured loss events (4th highest on record)

Source: AON (2021 Weather, Climate and Catastrophe Insight)

This balance between risk and the potential for building climate-resilient business models made the news in September 2022 when Munich Re, the German reinsurer, announced it had developed product and performance guarantees to mitigate climate risks. The world's biggest reinsurer also said it would no longer invest in or insure oil or gas projects or new oil power plants. This, reported the *Financial Times*, put Munich Re in the same club alongside Lloyd's of London, Swiss Re, Generali and Fidelis, and Hannover Re, all of which are being pummelled as the losses from mega climate disasters mount around the world.

Not surprisingly, the South African Reserve Bank's Prudential Authority Climate Risk Survey Report 2021 also highlights the threat climate change-related risk could have on the stability of South Africa's financial system. The threat to business features strongly in The Institute of Risk Management South Africa's (IRMSA's) South Africa Risks 2022 report, which includes a detailed section on the nine top risks facing South Africa by Qiniso Mthembu, the chief risk officer at the JSE, and Totyelwa Dodo, acting director of risk management support in the office of the accountant general at the National Treasury.

The top risks, as highlighted in the IMRSA report, are as follows:

1. South Africa becomes a failed state.
2. Complete breakdown of ethical and legal principles across society.
3. Unmanageable societal unrest and breakdown of the rule of law.
4. Complete economic collapse.
5. Lack of skills to enable economic growth and recovery.
6. Large-scale disruption of economic activity relying on stable supply of utilities.
7. Large-scale interruption of digitally enabled services and economic activity.
8. Debilitating loss of trade benefits through South African ports into Africa.
9. Inadequate response to current and future climate change impacts.

Within these nine broad risk categories, Dodo notes that "the biggest risk that has already materialised is energy", which has a ripple effect for the economy and the fiscus. A water crisis is also looming, alongside risks noted in previous IRMSA reports such as the employment and livelihood crises, as well as the failure of public infrastructure. Depending on the trajectory along which these risks develop, the resultant scenario could be anything from a stalemate to, in the IRMSA's words, a 'perpetual hangover'.

It is imperative that we do share risk information among African countries.

Consequence for NDP Priorities (MTSF 2019-2024) and Vision 2030

				Consequence for NDP Priorities 2030 (MTSF 2019-2024)						
Key Scenario Driver (Flag)	**Perpetual Hangover**	**Fake It Until We Make It**	**Owning Our Future**	**Building a capable, ethical, and developmental state**	**Economic transformation and job creation**	**Education, skills, and health**	**Consolidating a social wage through reliable, quality basic services**	**Spatial integration, human settlements and local government**	**Social cohesion and safe communities**	**A better Africa and world**
Leadership capacity		x								
Institutional capacity		x								
Politics		x								
Social cohesion	x									
National policy		x								
Service delivery	x									
Inequality	x									
Economy		x								
Global trends			x							
Climate change		x								

Legend: Not affected | Will likely achieve | May achieve >50% | May achieve <50% | Will not achieve

Source: IRMSA Risk Report 2022

However, as Mthembu and Dodo wrote, "It is clear that South Africa faces the risk of becoming a failed state, driven by a breakdown of ethical and legal principles, social unrest and failure of the rule of law, resulting in complete economic collapse. This can only be turned around if we address the skills risk to help us avoid disruption due to unstable utility supply and digitally enabled economic activities, retain our relevance to Africa and address climate change risks."

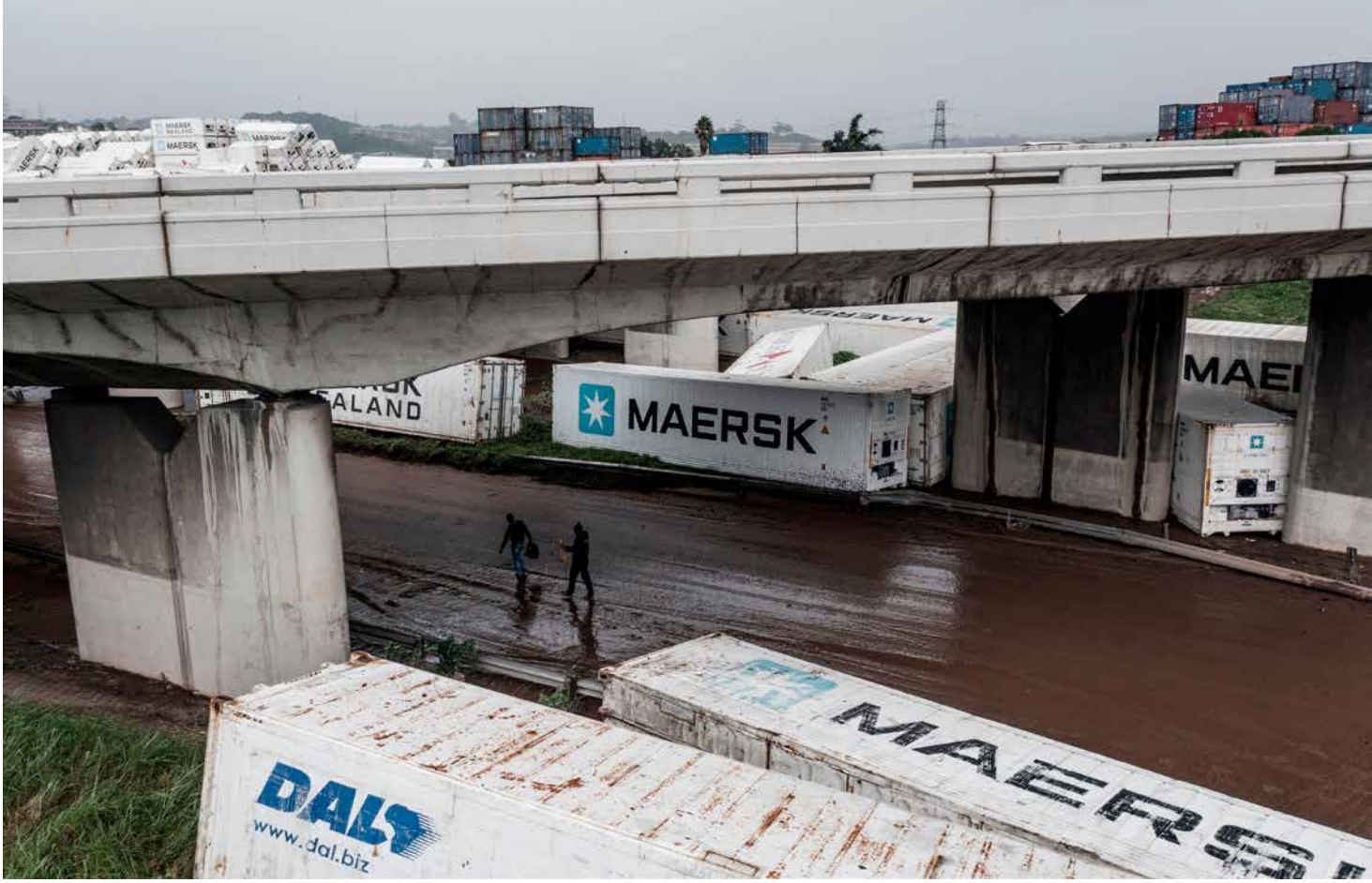


IMAGE Getty Images

Containers fell over at a container storage facility following heavy rains and winds in Durban on 13 April 2022.

Climate collapse, leadership and collaboration

How effectively addressing important issues like climate risk would work in practice was something else the IRMSA report touched on, highlighting closer collaboration, building awareness and incentivising sustainable practices. Leadership, too, plays an important role. Speaking to *Acumen*, Dodo, a member of the IRMSA risk intelligence committee, stressed the role risk managers play to "ensure that an effective risk management system, with effective risk management strategies, are in place in their areas of responsibilities".

She added that "leaders should also support these risk management initiatives, by ensuring that there are mitigation strategies in place, and ensuring that there is adequate support and resources to ensure an effective implementation of these risk management systems and strategies".

In order to develop these competencies, Dodo believes there is scope for business schools in particular to instil a greater risk mitigation and management focus among future business leaders. "Education and communication are key points to a successful implementation of that particular subject," she says. "I believe education/advocacy and communication should, among other initiatives, take priority. Risk information should be embedded in our day-to-day [operations], in such a way that it becomes second nature."

She notes that there is also a need for greater collaboration between business, government and society to appreciate current risks and then to determine both the potential impacts and opportunities where partnering might help to mitigate these issues. "Partnership between government, business and society at large is one of the key things I'd like to see in the future, after all, it is said that 'two heads are better than one'," says Dodo.

There is scope for business schools ... to instil a greater risk mitigation and management focus.

An African perspective

Dodo believes this cooperative approach should also be increasingly embedded in a greater African approach to tackling this shared climate threat; particularly in the arena of data exchange.

"Data exchange is the most critical element of identifying, sharing and mitigating risks," she says. "It is imperative that we do share risk information among African countries, and globally. It is also fortunate that there are structures that exist that we could tap into, in ensuring that there is efficiency in sharing risk information, and in particular climate risk information; structures like the G20 that are already involved in the issues of climate change, as well as other African structures."

ESG now dominates investor deliberations

For a decade the team at MSCI ESG Research has been publishing its ESG Trends to Watch report, which scrutinises emerging and systemic risks related to environmental, social and governance matters. As researchers, regulators and standards bodies increasingly include ESG as part of their ratings, these insights are being applied to investment thinking and business decision making to help understand, address and mitigate challenges being exacerbated by climate change.

In just 10 years, the 2022 MSCI report shows not only that ESG has "gone from fringe to mainstream" but also that "climate change has come to surpass corporate governance as the most pressing ESG issue commanding investors' attention".

Linda-Eling Lee, head of ESG and climate research at MSCI, noted in a recent webinar that while the focus on the E in ESG (environmental) does to some degree detract from the S (social) and G (governance), "it is more important because it poses an existential threat and a systemic risk, and we aren't moving nearly fast enough to address it". However, in time, regulation will touch more than just theE.

Certainly, when it comes to the future risks highlighted by MSCI, social need is emerging as a noteworthy concern. Specifically, the call is growing for more creative means of capital allocation and wider investor financing that looks beyond developed economies towards supporting more vulnerable countries and communities on their just transition journey.

Other future risks on MSCI's radar include:

- The impact of climate change on biodiversity loss, which is demanding a rethink on how we produce food, what we eat and how we manage water, soil erosion and the natural ecosystem.
- Concerns around the emergence of another pathogen, which calls for investment into new antibiotics and science in general.
- The issue of a fragmented regulatory environment with a lack of uniformity given that "at least 34 regulatory bodies and standard-setters in 12 markets [were] undertaking official consultations on ESG in 2021 alone".

Asked if, in light of the recent floods in Nigeria which displaced more than 1.4 million people, claimed more than 600 lives and destroyed over 82 000 homes, African governments and businesses were sufficiently prepared for potential risks, Dodo struck a positive tone, saying that "some African governments are adequately preparing themselves for risks associated with climate change".

She noted that, in the case of South Africa, "government departments and municipalities have their 'proven to be effective' disaster recovery strategies, particularly in the local government space. These have been in place for quite some time. There is also a lot of discussion among the government executive authority, formal and informal structures that look into climate change risk issues, such as climate financing, mitigation, adaptation and adjust components."

However, as the IRMSA report notes, the real chance of curbing climate change risk lies in promoting more and better collaboration between the public and private sectors. Only this way will business-led solutions have a chance to seize opportunities and unlock growth, without losing sight of the many social and economic challenges still facing Africa as a whole.

KEY TAKEAWAYS

1. The rate and violence of natural disasters around the world is being attributed to the impact of climate change.
2. The impact of these mega events has resulted in a 3.6x increase in insured losses and a 2.5x hike in non-insured losses over the past three decades, according to a 2022 Capgemini and Efma report.
3. Climate change implications feature among The Institute of Risk Management South Africa's nine country risks for 2022.
4. How South Africa – and the rest of Africa – addresses climate change impact will ultimately come down to closer collaboration, building awareness and incentivising sustainable practices. Leadership, too, plays an important role. GIBS

BY CARA BOUWER

Awareness is Great. Action is Better

Many South African companies are holding their own on the world stage when it comes to adopting and applying ESG metrics. However, while they are well positioned on social metrics such as diversity, inclusion and corporate social responsibility, specific climate change commitments are often lagging.

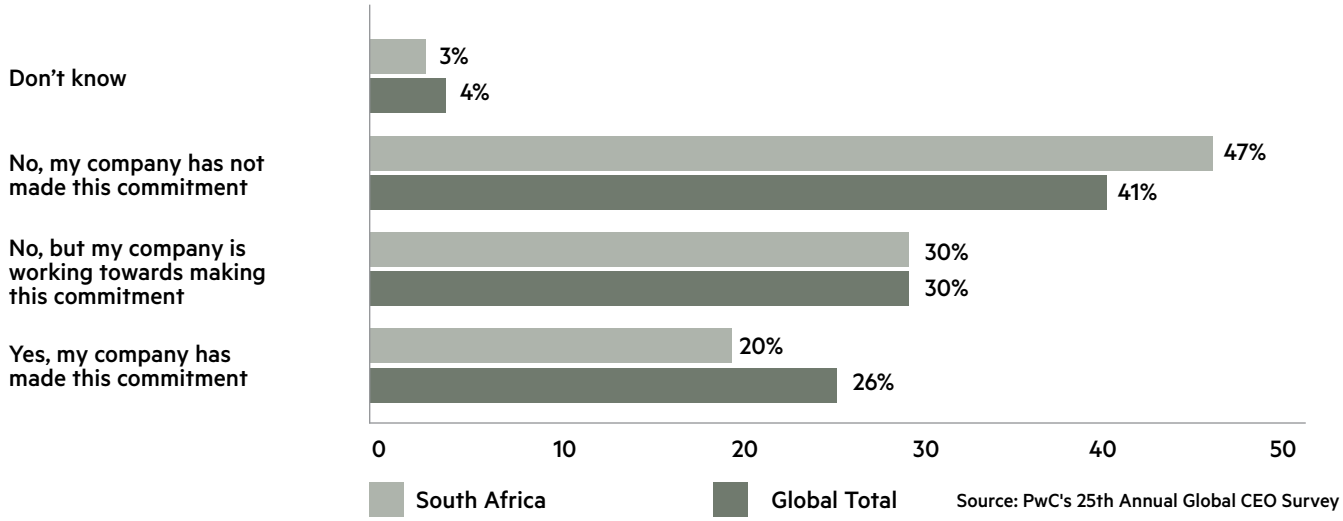
The 2022 PwC study 'Taking Action on Your ESG Strategy' notes that while six out of every 10 South African CEOs are "moderately, very, or extremely concerned about physical and transition risks associated with climate change", their companies were still behind the curve when it came to taking action on climate change.

According to the report, "Seventy-seven percent of South African CEOs say their company has not made a carbon-neutral commitment. This is worse when compared to the global average of 71% ... Furthermore, 80% of local CEOs say their organisations have not yet made a net-zero commitment compared to 73% globally."

Green issues arise out of green inequality and a lack of education.

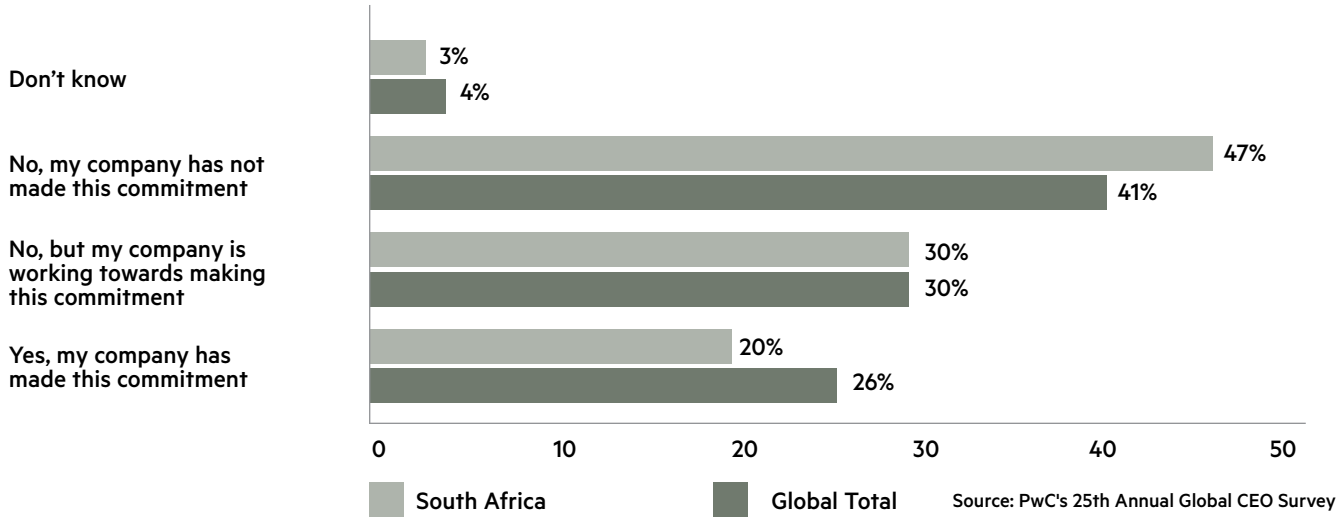
William Stubbings

Has your company made a carbon-neutral commitment?



Source: PwC's 25th Annual Global CEO Survey

Has your company made a net-zero commitment?



Source: PwC's 25th Annual Global CEO Survey

PwC defines carbon neutrality as a state "when your organisation's carbon dioxide (CO_2) emissions are balanced globally by CO_2 removal, typically over one year" and net-zero emissions as being achieved when an organisation's greenhouse gas emissions "are balanced by greenhouse gas removals, typically over one year".

Another sustainability study, this one from Deloitte, paints a slightly more positive picture. Commenting on the 'Deloitte 2022 CxO Sustainability Report', Deloitte Africa's Anne Muraya told News24 that 79% of South African companies polled were already using sustainable materials versus a global average of 67%, and 75% of South African firms were improving energy efficiency efforts compared to a global score of 66%. In line with the awareness of South African business leaders to the potentially negative impacts of climate change, Muraya noted that 60% of South African respondents had already obtained insurance as cover against extreme weather risk, versus 46% globally.

A part to play

At a global level, the Deloitte report notes, "[C-suite executives] are struggling to take actions that balance short-term incremental steps with long-term measurable impact, nor do they seem to fully understand the benefits of embedding sustainability into business strategies and operations." However, the research does show that leaders – including those in South Africa – are aware of and looking for ways to respond to climate change challenges.

Locally, this view accords with perceptions around environmental, social and governance (ESG) generated from good-news stories, such as Old Mutual Investment Group being named Best ESG Responsible Investor (Africa) 2022 by UK-based journal *Capital Finance International* or Exxaro taking the Best Sustainable Reporting Award (metals and mining category) at the UK-based 2021 ESG Reporting Awards.

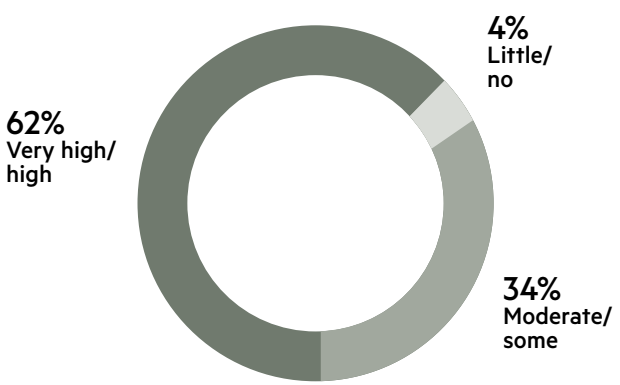
For William Stubbings, associate director at Kantar Consulting, another company worth singling out is Vodacom. "They've made a strong commitment to renewable energy and they want to be 100% renewable by 2025, which is pretty incredible," he says. "They have the financial muscle to do it, and the gumption as well. That is an example of a company that is trying and while you can always poke holes, it is an example to note."

Vodacom Group CEO Shameel Joosub was among some 30 000 world leaders, officials, business people, observers, experts and commentators who descended on Sharm el-Sheikh, Egypt for the COP27 climate change conference in November 2022. The telecommunications group sponsored the event.

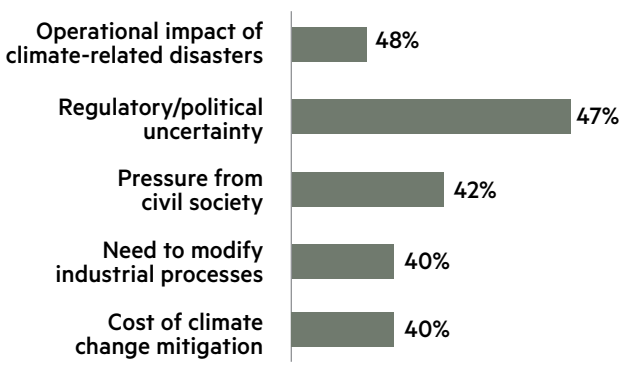
Talking to CNBC Africa at the time, Joosub said all corporates should be going down this path. "We as a company have to do the right thing and make sure we are playing our role," he said. "I think shareholders will understand that we have to play our role in being able to help in climate change and to make a meaningful difference. That is our purpose.... When you invest in us, that's the ethos you need to buy into."

Almost all respondents said their companies have been affected by climate change

To what degree do you excpect climate change to impact your company's strategy and operations over the next three years?



Top-five climate issues already impacting companies (select all that apply)



Source: The Deloitte 2022 CxO Sustainability Report

Joosub singled out the need for partnerships if businesses are to achieve goals such as reducing greenhouse gas emissions, which Vodacom hopes to cut by 50% by 2025 across its footprint. In 2021, Vodacom put its money where its mouth is by working with rivals Deutsche Telekom, Orange, Telefonica and Telias Company to create an eco rating for cellphones across various brands, helping customers to make more informed choices about sustainable brands and also how best to dispose of old handsets.

Looking north

There are similar, positive corporate stories coming out of greater Africa too, says Astrid Ricketts, Kantar's Middle East & Africa sustainability director. She points to EABL East Africa Breweries Limited, the East Africa business of global drinks maker Diageo plc, and its support of the local economy.

"They've got net zero commitments through their grain-to-glass sustainability strategy pillar, but they are also very connected to local farmers, with the local economy, and they try to promote positive drinking, as well as inclusion and diversity. So, they're touching quite a lot of parts of society," says Ricketts. "They are so embedded in society; they own 90+% of the alcohol market. So, they have the power to influence governments and collaborate with government. I do think this is a company that is doing a lot of good – even though they're an alcohol company and some people could argue that can never be good. But people are going to drink, right? So, we just need to make it safe, equitable and sustainable."

In 2022, Diageo announced funding worth £450 000 for innovations focused on monitoring and reducing the impact of climate change and water crises on smallholder farms in Africa. With a focus on decreasing precipitation and its implications for food security and poverty alleviation, as well as supporting healthy soil and biodiversity, the East Africa pilot spans both environmental and social challenges facing local farmers.

This interlinked focus is important given that social challenges are deeply interconnected with environmental responses in Africa. This is why many African companies start their ESG journey with a social focus, says Stubbings. "You can kind of understand it – everything is connected and one issue creates another. I mean, green issues arise out of green inequality and a lack of education, there are a million examples," he says, recommending that companies look back into their value chains when determining their response to ESG challenges.

Many companies still see ESG as a cost, not an investment.

"You can't just look myopically at your own competitive space," he adds, noting that if alcohol manufacturing companies were truly committed to sustainability, they would look all the way back to the farms from where they source their products, and how laborers are treated. Rival beverage company SABMiller, for instance, recently released its first consolidated ESG strategy, which prioritises water preservation, renewable energy transition and ongoing support for and integration of small businesses into the supply chain, through the work of the SAB Foundation and the SAB KickStart Initiative.

What is important, Stubbings says, is that plans move from the page into action. "Your whole business' sphere of influence must be coherent, you can't just make a recyclable type of packaging and then start punting that to consumers claiming you're a sustainable business if what's happening behind the scenes in your supply chain is not working in that way," he says. "It's not something that you just start talking about as if it's the new trend. It's something that actually comes down to the nuts and bolts of the business." GIBS

Astrid Ricketts

...we just need to make it safe, equitable and sustainable.

Where to start

Legacy, and the hangover of entrenched organisational culture paradigms, is another important aspect holding many organisations back from responding strongly to ESG matters. PwC's research highlights how many companies still see ESG as a cost, not an investment, which relegates these interventions to issues of implementation, compliance and reporting, rather than as effective levers for transformation.

Stubbings agrees that not every company has the benefit of starting from a sustainable base, like Patagonia, the environmentally conscious, sustainable clothing brand. Instead, the best way to push forward is to carefully position ESG efforts around issues germane to the business. "You have got to understand the role of your category in sustainability and play against those issues. Not every issue is for you to take on, but you do have some that you must," he says.

Where South African – and African – companies can learn from US-based Patagonia is the boldness to do things "differently to the way business has been done in the past", says Stubbings.

In September 2022, Patagonia's founder Yvon Chouinard and his family reinforced the brand's sustainable capitalism credentials by "transferring their ownership of Patagonia, valued at about $3 billion, to a specially designed trust and a non-profit organisation", reported *The New York Times*. The newspaper noted that the structure had been "created to preserve the company's independence and ensure that all of its profits – some US$100 million a year – are used to combat climate change and protect undeveloped land around the globe".

The new Patagonia trust structure is designed to separate voting rights from the harvesting of economic value, thereby ensuring that future decisions are not aligned to profit but to purpose. This model raises the ante on ESG strategy and opens the question of how companies are expected to grow perpetually in a world of finite resources.

"There's a much bigger picture around how business is actually structured which, inevitably, has to change," says Stubbings. "We can't carry on like this much longer."

ESG in Africa: A social backbone

When it comes to making a positive contribution to society, Dr. Jill Bogie, GIBS joint lead faculty for MPhil Corporate Strategy, points to three simple steps to guide ESG thinking.

1. **Think big** – Think differently, think systemically, challenge assumptions and think in multiples.
2. **Start small** – Begin with a purpose in mind which steers immediate actions. The purpose will help establish milestones along the way.
3. **Act now** – Integrate sustainable development goals into your business strategy and business operations. It's an ongoing process, so be guided by the purpose.

While ESG covers the gamut of environmental, social and governance issues, for African companies it is also essential to be in tune with the needs on the ground. This inevitably means that social upliftment features strongly. Finding ways to link a social focus to a critical climate change agenda is the challenge facing many companies across the African continent. GIBS

KEY TAKEAWAYS

- Six out of every 10 South African CEOs are worried about climate change risks, according to a 2022 PwC report.
- Yet, 77% of these companies have not made a carbon-neutral pledge, and 80% are yet to commit to net-zero.
- However, Deloitte research shows that 60% of South African companies have already taken out insurance as cover against extreme weather risk, compared with 46% globally.
- Big corporates and multinationals are increasingly becoming aware of the part they need to play in advancing the ESG agenda.
- In the African context, social inequalities often inform how a company responds to climate change challenges.

DR. VIKESH RAJPAUL

Dr. Vikesh Rajpaul was instrumental in the establishment of the renewables unit in Eskom, and is currently a senior manager in Eskom, with end-to-end accountability for all large-scale renewables initiatives in Eskom, including responsibility for compiling and driving Eskom's renewables strategy. He is a hands-on mechanical engineer with professional Engineering Council of South Africa (ECSA) registration, has an MBA and a Government Certificate of Competency (GCC).

BY DR. VIKESH RAJPAUL

Fighting Climate Change in the Era of Fake News

Climate change is a reality, and South Africa is especially prone to the effects of climate change, yet we are inundated with fake news from biased sources increasingly muddying the pool of information. The problem with fake news is that it leads to suboptimal decisions, and more perversely can lead people to stop believing in facts altogether.

As an engineer involved in the renewable energy space, I was concerned about the persuasive impact of fake news on the quality of decisions taken in climate change. Importantly, I was concerned about how we could overcome the proliferation of fake news, which was the driver behind the research for my doctoral thesis.

The proliferation of fake news in the climate change debate

Fake news is increasingly becoming a challenge. This is because the spread of information, which is possible to disseminate across a number of platforms, is increasing. The issue with fake news is that it is deceptive, offering up misleading information made more convincing because it is spread through channels that mimic legitimate news sources.

The role of fake news is to create a distorted perception of reality. And when it comes to the climate change debate, it depends on where their vested interests lie. One of the biggest concerns around fake news is that it can result in suboptimal decision making by individuals and society and that its presence can result in people questioning legitimate scientific evidence.

Fake news in climate change can be traced back to the early nineties, where the US-based Global Climate Coalition (GCC) became increasingly concerned with the growing body of scientific evidence pointing towards post-industrial human activity and the associated increase in carbon emissions as the leading cause of global warming and climate change.

The GCC was formed to represent all industries that were totally reliant on coal and other fossil fuels, like oil and gas, and therefore had a vested interest in maintaining the status quo at the time. As such, much like South Africa's Bell Pottinger case with the white monopoly capital narrative, the GCC hired a world-class public relations company to change the narrative.

What they found was that if they positioned their misinformation from a scientific perspective, by getting scientists to contradict the emerging evidence, they would have a significant impact in changing the dialogue. As such, they recruited scientists to assert that the science around the role of human activity, namely the burning of fossil fuels and the emitting of carbon dioxide within the climate change debate, is not conclusive and therefore cannot be attributed to these activities. Their aim was to create enough 'scientific' uncertainty to confuse people.

They were so successful in this campaign, that even with known environmental activist Al Gore in the White House, the US was not a signatory to the Kyoto protocol.

My research

I structured my research to understand whether we can change people's perceptions once they have been exposed to 'convincing' fake news. I entitled my thesis *Countering Fake News: A Longitudinal Experimental Examination of the Relative Influence of Source Bias and Social Consensus as Discounting Cues on Attitudes*.

My research design was a full experimental research and design framework that used two pilot studies and a main study, which looked at the response from 190 participants. The study was conducted over three months in five parts, which were headed Time 1, Time 2, etc.

The role of fake news is to create a distorted perception of reality.

The first measure, at Time 1, was to establish a baseline to test participants' initial attitudes to climate change. Then at Time 2, I looked at what, if any, impact fake news had on their initial views. At Time 3, which was after the fake news story was read, I followed up with a contradiction to the fake news (called discounting cues), and finally, I looked at the impact that time had on people's views. Time 4 was measured after two weeks while Time 5 was measured three months later.

Time 1

I started my research by sending people who had opted into my study a number of questions to test their views on climate change, global warming and carbon dioxide emissions. I asked them how much they agreed with the following statements on climate change:

1. It is attributable to carbon dioxide emissions.
2. Human activity is the cause of climate change.
3. Human intervention is required to address climate change.
4. There should be urgency to address climate change.

It can result in suboptimal decision making by individuals and society

Time 2

Once I had that feedback, which gave me an indication of where their views stood before I started my study, I sent them a fake news article. The article I used was compiled by researchers and was a typical example of how climate change fake news is presented. I adapted the piece so that it had a South African focus, and I presented it as a blog article. The article stated a number of mistruths around climate change, including that human activity is not a contributor to climate change and that 31 000 scientists had signed a petition stating that climate change is not a reality.

After sending the article to my respondents, I asked questions to understand how much they had internalised the contents. I then measured how their attitudes had changed as a result of reading the blog. I found that the change in attitude after reading the fake news piece was statistically significant in terms of the influence it had on people's view on climate change.

Time 3

It was at this point that I wanted to measure if this change of attitude was, in fact, reparable. So I split the respondents into three groups. The first group was the control group, who only saw the blog article.

The second group were exposed to reader comments, typical of those at the end of a blog article. The comments debunked the findings in the blog. In the comments, I had six convincing arguments questioning the contents of the piece, and calling it fake news. I wanted to see if you could impact readers' attitudes by showing them that the information was questionable and stating that the blog was fake news.

The third group of people were told that that the author of the article was not credible and was biased as he had a vested interest in the fossil fuel industry and was spreading fake news to intentionally confuse the climate change debate. It did not comment on the content of the piece. This information was given in the form of letters to the editor, saying that the writer was concerned that a reputable publication would publish an article like this without checking or verifying its sources. In the letter, I highlighted that the author of the blog has shares in a mine and was a member of the Global Climate Coalition.

Time 4 and Time 5

Then finally, I wanted to measure if attitudes that were swayed with the fake news would change over time or if they are durable. I also wanted to see what information stuck in readers' memories – the fake news, the letters to the editor or the comments at the bottom of the article. To do this, I measured the attitudes of all three groups after two weeks and then again after three months of the initial reading of the piece, the comments and the letter to the editor.

The change in their attitudes was significant.

Findings

The findings were very interesting. Looking at the graph, you will see that initially all groups held similar views on climate change at the start of the study.

The impact of fake news article affected how people viewed the climate change debate and was statistically significant.

What was really interesting to me was that both group 2 and group 3 responded in the same way to the corrected information. My research found that the impact of the comments and the letter to the editor, questioning the validity of the piece, was statistically identical. Both discounting cues, the comments at the bottom of the blog and the letter to the editor, were equally effective in changing people's attitudes and countering fake news, and the change in their attitudes was significant.

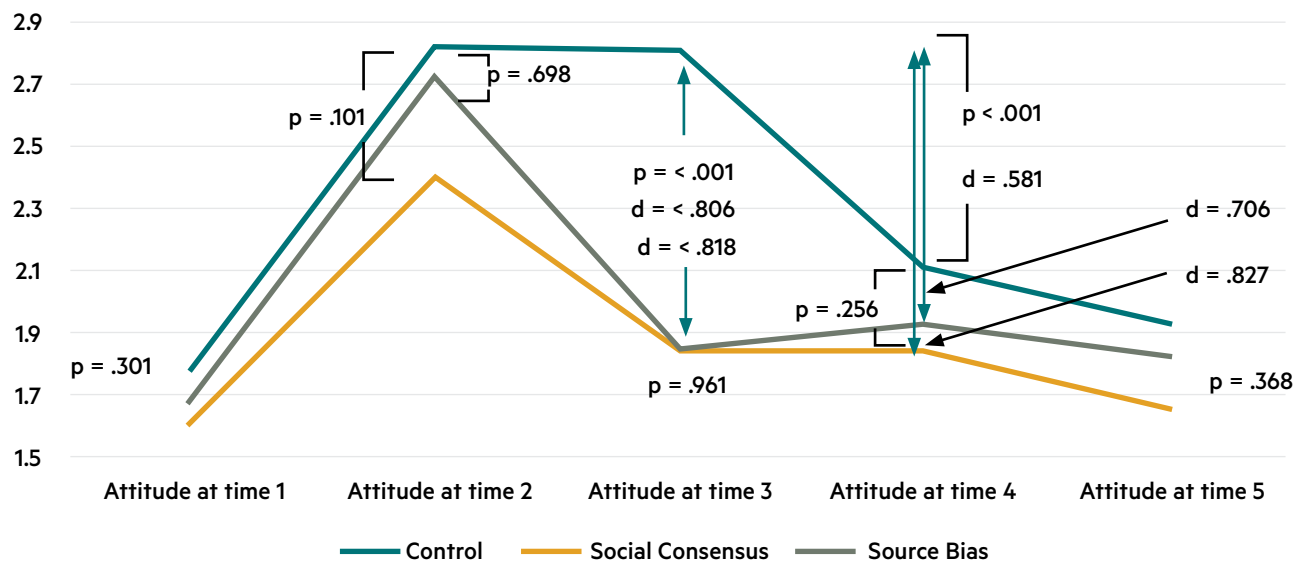
At Time 4, two weeks after the group was exposed to the fake news, everyone's attitudes, including those of the control group, started to return towards their original point of view. By Time 5 on the graph, which was three months later, there was an incremental shift in people's attitudes, towards the position put forward in the fake news article, but the difference across the three groups were not statistically significant.

Conclusion

Research into countering fake news is new, however, the peddling of fake news is not. The persuasive effect of fake news was confirmed when participants exposed to fake news had a statistically significant shift in attitude. The two discounting cues proved equally effective in restoring attitudes. With time, attitudes had migrated towards their original values, but the incremental shift in attitudes suggests the presence of the continued influence effect, meaning fake news does leave an imprint, albeit small, in people's thinking.

The results from this research have practical implications for a number of spheres of persuasion, where the issue of fake news has become prevalent, including environmental and climate issues, politics, and the tobacco, sugar and asbestos industries.

Group Comparison - Changes in attitudes over study period



KEY TAKEAWAYS

1. Fake news is a reality that can mislead and distort people's perceptions around major global issues.
2. Fake news is disseminated by organisations that have a vested interest in distorting the debate around critical issues like climate change.
3. People are open to accepting an alternative point of view if it is presented in a legitimate way.
4. Understanding how to negate the effects of fake news can have major implications for any industry that is being targeted by lobby groups with a specific agenda, from the smoking, sugar and asbestos industries to politics and climate change. GIBS

BY JAMES VAN DEN HEEVER

Measuring Carbon Emissions: There's the Rub

Companies stand a much better chance of reducing their emissions of greenhouse gases if they focus on refining their ability to measure them, new research shows.

Time to dust off one of management's hoariest adages – 'If you can't measure it, you can't manage it' – for a new age. According to research published towards the end of 2022 by Boston Consulting Group (BCG), there's a strong link between a company's measurement of its emissions and its ability to reduce them.

With all that remains now from COP27 being the whiff of fuel from private jets, one can expect the pressure on corporates to ramp up their ESG (environment, social and governance) scores to protect their reputations, comply with legislation and – yes – realise bottom-line benefits.

BCG's research paints a somewhat dire picture, with the atmospheric concentration of carbon (415 parts per million, or ppm) now perilously close to the 430ppm which has been identified as the trigger for a 1.5°C rise in global temperatures.

The link between emissions measurement and emissions reduction is clearly one of the most valuable outcomes of the research. Forty-five percent of companies that partially measure their internal and external emissions (Scope 1, 2 and 3) declare a significant reduction in those emissions, with the percentage rising to 58% for those that measure the full scope of their internal emissions.

Among the elite group of companies that measure the full scope of both internal and external emissions, 64% have realised a significant reduction in emissions.

The corollary is not so rosy: measurement is a problem, with very little progress made since the first study in 2021. Eighty percent of respondents only partially measure their internal and external emissions, while only 10% fully measure internal emissions, with a further 10% fully measuring both internal and external emissions.

Accurate measurement remains elusive.

Companies are actually looking for benefits from reducing their emissions.

A major problem is that accurate measurement remains elusive, with respondents estimating a 25%-30% average error rate in their measurements, a small (five percentage point) improvement on 2021. The related and even bigger problem is that while Scope 3 (see box) emissions account for more than 90% of emissions, they are devilishly hard to measure, and are a first priority for only 12% of organisations.

The focus on Scope 1 and 2 emissions, and the general avoidance of Scope 3, is surely the reason that emissions continue to rise despite growing focus on minimising climate change.

There are benefits

If you worry that the way Covid-19 played out (lockdowns based on models produced by experts and widely accepted by authorities) could have at least some parallels with the longer-running climate-change scenario, rife with its own set of "unanimous" experts, it's some comfort to see that companies are actually looking for benefits from reducing their emissions. More than 70% of respondents expect $1 million or more in annual benefits, while 37% see benefits in the $100 million-plus range.

These benefits are expected to flow from improved reputation and lower operating costs (54%), higher company valuations (48%), increased revenues (43%), local tax benefits (40%) and ability to attract talent (37%).

However, it bears mentioning that these benefits are not necessarily realised, and there is no data on the costs included in BCG's research – but see the sidebar for details of the costs projected by PPC.

On the one hand, we should not necessarily read too much into this lacuna; these are early days, and the data is probably just not available. But, on the other hand, business is usually very quick to produce a cost:benefit analysis for most projects. The worry is that reducing emissions is seen as a no-brainer, something that just has to be done for a variety of compelling non-business reasons, and that the business case (in the classic sense) might have been somewhat neglected. As the sorry case of FTX and its moralising CEO Sam Bankman-Fried should vividly remind us, an avowed wider moral purpose can hide some ugly realities.

Roll on, 4IR

A final nugget from the research is the need for technology to be harnessed to make emissions measurement both more accurate and easier to do.

"Measuring accurately is essential to drive effective emission reduction plans and it is also a very challenging task – it requires compiling, assessing and interpreting massive amounts of data on an organisation's operations," says Charlotte Degot, founder and global leader of CO2 AI by BCG. "Doing this task manually is extremely hard, but digital tools and AI can process data from diverse, unstructured sources (e.g., invoices) and match them with emissions factors."

She makes the important point that technology can play a key role – will in fact be the enabler, one might argue – in solving the challenge of accounting for Scope 3 emissions.

To get a glimpse of what it's like on the frontline of emissions measurement and reduction, consider the case of PPC in the sidebar.

JARGON BUSTER

When it comes to emissions measurement, it's important to understand that internal emissions fall into two categories:

- **Scope 1:** Direct emissions made by a company; for example, running a plant.
- **Scope 2:** Indirect emissions, the main culprit being the energy it uses for heating or cooling buildings that is produced by a third party.
- **Scope 3:** This covers the emissions relating to the company's value chain. This would include the emissions created by supplier to produce something the company uses, emissions created to get the product to market (logistics), and then emissions caused when customers use and dispose of the product.

SIGHTS SET ON NET ZERO

Reducing emissions is a burning topic in the construction industry – cement is responsible for a whopping 5%-8% of greenhouse gas emissions. Making cement not only uses inordinate amounts of energy, but the chemical processes involved also generate CO_2. On average, manufacturing a ton of cement releases 642kg of carbon dioxide. South African cement is somewhat above that at 671kg, rather more than India's 582kg but way better than the United States' 745kg.

Oh, and did I mention that cement demand is growing strongly, and is expected to hit 18 billion tons by 2050, up from 4.1 billion tons in 2015?

In short, there's very good reason for a cement company to be focusing on ways to reduce its emissions. South Africa's iconic cement brand PPC collaborated with GIBS to produce the Building Africa Report 2022, to look at ways of reducing cement's carbon footprint within the context of Africa's drive to industrialise. (PPC had recently completed its Task Force on Clime-Related Financial Disclosures (TCFD) report, and much of this information fed into the Building Africa report.)

PPC has set itself a target or reaching net zero emissions by 2050, a stretch target in anybody's book. The challenges it faces are an indication of the difficulties that many businesses, particularly those in carbon-intensive sectors, face – some of them intractable. PPC will spend R664 million in 2020-25 to reduce the amount of carbon released per ton of cement by 10% (from 756kg to 680kg), with further costs not yet disclosed. Reaching net zero will clearly be a major expense (the figure comes from the TCFD report) but, says PPC's head of operations, Delon Perumal, it is assumed that all decarbonisation projects create value, yield positive net present value aligned to internal financial metrics, and are entrenched with the company's normal capital allocation to sustain operations.

On the question of measurement error, Perumal says that 25%-30% is way off the mark – the company calibrates its instruments regularly and estimates an error margin of more like 5%, with an internal target of 0%. However, it must be noted that the company's focus is very much on Scopes 1 and 2.


Delon Perumal

Chris Greensmith, technical director of structural engineering at Zutari, an engineering and advisory firm, says that a key issue in South Africa is that there are as yet no agreed carbon factors (used to calculate the emissions per unit of activity) for South African materials. At present, projects must begin with the generic global figures and calculate the carbon factors for themselves. "It's laborious but it's not hard," he says. He argues that it's more important to establish a solid baseline from which to measure progress in reducing emissions than to try and establish absolute, accurate readings.

"It also shows what to focus on," he adds.

Perumal says that another challenge is that PPC is still at the stage of dealing with all its data manually, although controls are in place. The company is in the process of automating data capture, and presumably the use of AI cannot be far behind to automate analysis.

The clinker conundrum

Clinker, the main constituent of cement, is created by heating clays and limestone at very high temperatures. It uses a lot of energy, and the process itself also releases large volumes of CO_2. It's suggested that reducing the proportion of clinker used will necessarily reduce cement's carbon footprint – the possible reduction is disputed, with estimates of 50% and 37%. Viable substitutes for clinker already exist, including waste products from other carbon-intensive processes such as coal burning and steel smelting.

Increased efficiency has the potential to generate another significant portion of emissions savings, with 22% of planned savings to be derived from designing buildings that are more energy efficient and longer lasting.

Greensmith also points out that embodied carbon also needs to be taken into account – this is the carbon dioxide emissions associated with processes related to materials and construction through the life cycle of the structure. It's similar in concept to Scope 3, and nobody is yet giving it much attention, at least in South Africa.

In the end, though, given the stubborn carbon intensiveness of cement, to achieve net zero (or anything like it) means that carbon capture – capturing the CO_2 emitted and storing or using it – will ultimately have to play a role. Carbon capture is very expensive, so it's likely that incentives would need to be developed to push the industry in that direction. But it is possible – one Norwegian factory is set to open a carbon-capture facility that, on its own, looks likely to cut the plant's emissions by 50%.

Meanwhile, says Perumal, PPC now has a solid baseline in place and knows what areas it should be concentrating on first. "We have made significant progress," he says and, of course, it's ultimately the accuracy of the measurement used that will allow the company to achieve its ambitious goal. GIBS

On average, manufacturing a ton of cement releases 642kg of carbon dioxide.

BY STEPHEN SMITH

Making the Switch:

The Present and Future of Electric Vehicles in South Africa

When discussing climate change, sustainability, carbon footprints and the like, a subject that pops up every time is electric vehicles (EVs).

Volvo XC40 P6 Recharge

There's no sacrifice in terms of drivability when choosing an EV over an ICE.

Electric vehicles (EVs) don't exist only in the future – they're here. Parts of Europe have readily adopted EVs, and many major cities have adapted to them. All of the traditional major car manufacturers now have at least a few EVs on their books, while the most valuable car company in the world, Tesla, produces nothing but electric vehicles. (Well, it's usually the most valuable car company in the world – depending on what Musk tweets...)

So how do these electric cars compare to the ICE (internal combustion engine vehicles) we're used to?

To get a better understanding of the vehicles and the industry, we spoke to Brett Hamilton, a strategy researcher at Vlerick Business School in Belgium, who has done extensive research into EVs in South Africa. "Electric cars have actually always been pretty good from a product perspective," he says. "I remember driving the Nissan Leaf in Los Angeles in 2011 and besides its Noddy-like looks, the vehicle itself was spacious, comfortable and got me around in great comfort. I would've bought one if I'd had the money."

It's now 12 years later and technology has developed at pace, so there's no sacrifice in terms of drivability when choosing an EV over an ICE.

Volvo XC40 P6 Recharge

In fact, there are a number of advantages:

- They are almost silent,
- The electric motors can produce maximum torque almost instantly so acceleration is phenomenal,
- The heavy batteries give a low centre of gravity and therefore good handling,
- Braking is excellent because it utilises the motor as well as the brakes, and
- They are hugely energy efficient.

In terms of outright performance, electric cars can more than hold their own: the Porsche Taycan Turbo S, for example, can accelerate from 0-100km/h in just 2.87 seconds. Elon Musk's fastest Tesla, the Plaid (yes, that's the real name) can do it in under 2 seconds!

Hybrids

Another option is petrol-electric hybrids. Hybrids have been around for a while now, having made it into the mainstream via the first Toyota Prius back in 1997. Most hybrids use a combination of a petrol engine and an electric motor, the electric motor aiding performance and therefore allowing the car to make do with a smaller petrol engine, while also enabling the vehicle to drive at low speeds powered by the electric motor only, cutting down on emissions.

In terms of servicing, electric cars are potentially very reliable as there are far fewer moving parts: there's no engine with pistons and valves operating under huge pressures, there are no turbos and no gears (for the most part). This also means that servicing costs are low – there's also no oil to be replaced, and brake pads last longer due to the engine braking. This all affects running costs.

London EV Charging station

Even developed nations such as the US are far from the electric vehicle tipping point.

That brings us to the major financial benefit: if we say that fuel averages R24 per litre, an ICEV that uses a realistic average of 8 litres of fuel per 100km uses R192 of fuel to travel 100km, which equates to R1.92/km. In comparison, the average EV is said to be 75% cheaper to run, which would mean it costs just R0.48 per kilometre to run. If you travel 2 000km a month, that amounts to a saving of R2 880 every month.

EV disadvantages

But there are also two major practical disadvantages of EVs over ICEs. The first is the high initial purchase price, particularly in South Africa. For some strange reason, import duties on EVs are higher than on ICEs, at 25%, perhaps indicating that the South African government is not actually ready to welcome them into the country in numbers.

According to Mark Raine, co-CEO of Mercedes-Benz South Africa, South Africa is the only country in the world where EVs are disadvantaged like this. This is in stark contrast to developed markets such as certain US states and Norway, where tax incentives to buy EVs have played an important role in their adoption. In Norway, where there are tax incentives to owning an EV, one in five cars (20%) on the roads is already electric, and in another two years that percentage will go up to 30%. The country has an incredible goal of all new cars being sold from 2025 being electric.

Then there is the dual concern of range and charging times, which the South African landscape and lifestyle brings into sharp focus.

“I would say a major issue is that the typical driving needs of a South African differs from, say, a European,” says Hamilton. “Our cities are more sprawled out, our suburbs often located very far from CBDs, and the distances between towns and cities are immense in European terms. This means that we drive more, further and faster. Let me use an example: one of the most popular EVs in Europe right now is the Citroen Ami, which measures about 2.4m long and 1.4m wide. It also only has a top speed of 48km/h. Perfect for inner-city Paris, but not so much for a typical Joburger.”

If we return to Tesla’s market capitalisation, we’d be forgiven for assuming that Tesla is outselling its more traditional rivals by a matter of factors. But in reality, only 1% of vehicles on the road in the US – the world’s biggest car market – are electric. Toyota sells more than 10 million cars a year, while Tesla has sold a total of just over 3 million vehicles since 2008.

South Africa will need to find a way of addressing the topic of charging.

This is increasing every year, but the company's record year as of the end of 2021 was just under a million units. Research indicates that even developed nations such as the US are far from the electric vehicle tipping point – with more than 278 million ICE vehicles on the road, it will take decades for EVs to replace them. In May 2021, only 4.6% of vehicles registered in the US were electric.

If that's the case in the States, a country like ours still has a long road ahead. Yes, our hands will be forced as vehicle manufacturers are required by European legislation to stop manufacturing ICE vehicles, but this will still take decades to trickle down.

According to Hamilton, there are three focus areas that South Africa needs to address before EVs can be embraced by the mainstream:

- The first is to develop a reliable and dispersed charging infrastructure.
- Second, EV technology must still develop in such a way to allow for quicker charging and longer usage distances.
- Finally, EVs must become much more affordable.

South Africa will need to find a way of addressing the topic of charging, which we can't necessarily do in the same way as it is done in European markets due to security issues. In London, for example, there were already 8 600 EV charging stations at the end of 2019, while France has well over 40 000 charging points. Fuel stations, shopping centres and parking garages are all popular sites for charging stations, while there are also more creative solutions such as more than 1 000 streetlights in London being retrofitted as chargers (see sidebar).

Volvo XC40 P6 Recharge

EV technology is developing quickly, and one major technological development on the horizon is solid-state batteries. We won't go into the technical details of how or why, but solid-state batteries are quicker to charge and hold their charge for longer, which means that smaller batteries will produce more power than current, liquid-state batteries. Companies such as Toyota and Mercedes-Benz have invested in solid-state battery research and development, and there is a real possibility that this technology will move from prototype to commercial production within the next few years.

As for affordability, South Africa could deal with this issue with the swipe of a pen – if duties on EVs are done away with, they will instantly become affordable to more than the wealthy few.

One final issue needs to be considered, that elephant in a dark room: Eskom. While South Africa battles with load-shedding, our infrastructure simply isn't stable enough to rely on for vehicle charging.

So what is the conclusion?

Electric vehicles are brilliant, but they are not practical for South Africans as a primary or only vehicle, right now. As a second car for commuting and the school run, they are already a brilliant option, but the price premium negates the financial savings on fuel.

Big things are on the horizon, though, and that's before we even look at technology such as hydrogen fuel cell vehicles...

To see a map of charging points in South Africa, visit www.chargestations.co.za or www.plugshare.com.

EV buyers' guide for South Africa

More and more electric cars are becoming available in South Africa, with all of the major players dipping their toes into the market. Unfortunately, the overwhelming majority of these vehicles are expensive. We've taken a look at what's available and found three options that appeal.

Entry level: Mini Cooper SE

The Mini Cooper SE is the most affordable proper electric car in South Africa at R694 600. Externally, there's not much to differentiate it from a regular ICE Mini, save for some yellow badges and trim, so while it may not stand out, it is still a trendy little car. The battery pack doesn't take up any luggage room, so the boot is the same as on the ordinary Mini.

Powered by a single 135kW electric motor and with a 32.6kWh battery pack, the SE can accelerate from 0-100km/h in just 7.5 seconds and has a claimed range of 215km. This makes it brilliant for the average commute, especially if you have the option of charging the car while you're at work. Longer trips, though, are above its paygrade.

Price: From R694 600
Range: 215km
0-100km/h acceleration: 7.5 seconds
Warranty:

- Manufacturer: 2-year/unlimited km
- Battery: 8-year/100 000km
- Maintenance plan: 5-year/100 000km

Mid-range: Volvo XC40 P6 Recharge

When the Volvo XC40 P6 Recharge was launched in South Africa, the entire initial allocation was sold out within 24 hours. Admittedly, that was a limited number of just 25 units, but it is still an indication that the Volvo is an attractive proposition. Based on the regular XC40, it is a compact SUV that has enough space to be a practical family vehicle, while the claimed range per charge is an impressive 423km. The P6 uses a single motor that produces 170kW and 330Nm, but if you want a quicker version there is also the more expensive AWD P8 model, which features two electric motors resulting in a total of 304kW/660Nm!

As you'd expect of a Volvo, the Recharge models are very well equipped with comfort and convenience features, as well as driver assistance and a 5-star safety rating. What is interesting is that the Recharge models come supplied with a 3-phase 11kW wallbox charger, which charges your vehicle far more quickly than if you plug it into a normal plugpoint. The wallbox is capable of charging at a rate of 50-60km of range every hour, or 7-8 hours for a full charge from empty. Another unique selling point is that Volvo will lend you a petrol Volvo for two weeks per year for three years – perfect if you want to do a long trip that your EV isn't up for.

Price: From R1 260 000
Range: 423km
0-100km/h acceleration: 7.4 seconds
Warranty:

- Manufacturer: 5-year/100 000km
- Maintenance plan: 5-year/100 000km

High-end: Porsche Taycan Turbo S

If you're in the market for the best EV around, you'd be hard pressed to do better than the Porsche Taycan Turbo S. Powered by two electric motors with a combined output of 560kW/1050Nm, the Taycan can surge from 0-100km/h in just 2.8 seconds despite weighing 2.3 tons! It's actually quite a sensible vehicle too, with four doors and four seats as well as luggage space under the bonnet and in the boot. The batteries are positioned low in the floor, so the Taycan handles like a Porsche should, helped by aids such as torque vectoring and rear-wheel steering. Adaptive air suspension allows it to be comfortable too, and it is a fantastic highway cruiser.

With a gross battery capacity of 93.4kWh, the Taycan promises an average range of 440km, and apparently an urban range of up to 573km. Charging time from a DC fast-charger is an incredible 22.5 minutes to go from 5% to 80%, while a standard home charge will fully charge the vehicle overnight.

The Taycan Turbo S may not have an actual turbo, but it is probably the pinnacle of electric motoring right now.

Price: From R3 909 000
Range: 440km
0-100km/h acceleration: 2.87 seconds
Warranty:

- Manufacturer: 2-year/unlimited mileage
- Battery: 8-year/unlimited mileage
- Maintenance plan: 3-year/100 000km

Price: From R425 400
Range: 830km
0-100km/h acceleration: N/A
Warranty:

- Manufacturer: 3-year/100 000km
- Battery: 8-year/unlimited mileage
- Service plan: 6-year/90 000km

Hybrid: Toyota Corolla Cross Hybrid

The Corolla Cross Hybrid offers great value for a 'green' vehicle, even if it does still use a petrol engine for most of its propulsion. The 1.8-litre petrol engine produces 72kW and 142Nm, while the electric motor produces 53kW/163Nm. The combined total output is 90kW, and fuel consumption is a claimed 4.3L/100km. This is not a 'plug-in' hybrid, and the batteries are charged by regenerative braking and the petrol engine. In terms of performance, the electric motor provides an instant torque boost, aiding acceleration (similar to turbo/supercharger), and can also be used at low speeds for dedicated EV mode. This is the first hybrid vehicle to be produced in South Africa. GIBS

Re-charging London

With nearly 9 000 EV charging points, London's solutions are many and varied, ranging from what appears to be a common-or-garden lamp post...

... but on closer inspection turns out to contain a well-hidden charging point, complete with instructions on how to hook up...

...to altogether more obvious solutions, like these:

Anticipating the future, fuel companies have even begun to repurpose traditional filling station forecourts:

IMAGE Jacques Marais

BY JACQUES MARAIS

Tiny Home, Big Benefits

Modular homes used to aim at lower income market segments, but our contemporary less-is-more mindset has lent an exciting new cachet to owning a 'tiny house'. Plus, there's the bonus of fast-tracking occupation, applying green building methods and using sustainable material – such as hemp – which immediately elevates you into 'higher society'...

Immediate gratification. That's what we're all looking for these days, with our Polaroid cameras, 3D printers and 60-minute grocery delivery services. There is an undeniable need for speed in our fast-paced lives, and this extends into the building sphere.

Brick-and-mortar buildings may still be de rigeur, but rapid construction techniques certainly no longer apply to only emergency or low-cost housing. These days, high-quality pod homes feature on the pages of glossy magazines, often with a Hollywood star in situ.

Cutting-edge architectural design and a space-age approach to utilitarianism contribute to the minimalist aesthetics, while large areas of glass in these so-called 'pod homes' allow your living space to blend into its immediate natural environment. In many ways, your interior mirrors the quality and aesthetics of your exterior, and vice versa.

These contemporary pods are often created to be fully off-the-grid, with solar energy and grey water systems incorporated into the house design, thus making them largely self-sustaining. Innovation around the building process focuses on off-site manufacturing methods, allowing companies to prefabricate single- or multi-storey structures into modular sections.

Your interior mirrors the quality and aesthetics of your exterior.

This enables a carbon-neutral approach, with advantages to both buyer and environment, as pod homes can be designed to fit into an existing structure or work as standalone units. Plug-and-play is the name of the game and – once these modules are transported to a site – you can immediately and easily start building on a pre-laid foundation.

Transport, wastage, manpower, fuel and other secondary costs are therefore hugely reduced during the process, and the main benefit to the end consumer is that they're able to move into their new home within six to eight weeks. How's that for immediate gratification?

Locally based modular home companies leading the charge in South Africa include brands such as HouseZero and Inizio, with both entities aiming to convert premium clients in search of a quality home to thinking 'pod'. In addition to the immediacy factor, the other key selling points are sustainable living and environmentally friendly design.

Johannesburg-based HouseZero pioneered a completely new category in modular building. It was not aiming to create just another modular building system, and instead engineered a complete carbon-neutral solution, integrating contemporary aesthetics, green technology, interior design, smart house connectivity, solar energy, waste recycling and security.

Its Swiss-designed modular construction aims to tick all the relevant style boxes, striving for flow between airy open-plan spaces. It achieves this by using wood and glass surfaces, with premium finishes in both the bathrooms and kitchens.

At the heart of the HouseZero system you will find custom-engineered steel structures and high-tech flooring, with the wall and roof panelling manufactured off-site. The company strives for net-zero energy consumption, with climate control, energy management, lighting, shading and off-grid power integrated into the original structure.

Grid-independent modular homes feature roof panels incorporating solar power, thus ensuring they fully support the global trend towards net-zero carbon emissions goals. These modular homes will therefore generate and store their own power, with no need for connection to any power grid (all while avoiding the environmental burden associated with this).

There are still more ways in which modular houses can be made even more green. It would mean, however, that manufacturers would have to return to the proverbial drawing board. Just imagine, for a moment, that you could grow your substrate, rather than use destructive methods to mine it from the earth?

Hemp

This might be a good time for a slight redirection as we venture down a rabbit hole relating to the hemp industry in South Africa. Hempcrete lies at the centre of this potential industrial revolution – on a local as well as global scale – with the additional benefit of both kickstarting rural community development while helping to heal our damaged planet.

This hemp byproduct – basically manufactured from the fibrous hurd (or stalks) left after the actual hemp fabric and oils have been extracted – is set to become one of the touchstones on which future carbon-neutral building projects will be based. Previously, hurd would have been dumped, but hemp advocates are notoriously good at completing circular economy puzzles.

IMAGE Albertus Louw

"We are committed to harmony of purpose and form and believe that spaces achieve their full meaning when the natural elements of light, wind and water are in balance with the affairs of human life," explains Wolf (a mono-moniker), one of South Africa's most innovative spatial minds.

This visionary space-meister is founder and principal eco-architect at the award-winning firm Wolf & Wolf Architects. Many industry peers view him as a leader in the sustainable building design field in SA, and it is therefore no wonder that he was one of the first building designers to use hempcrete in commercial and private projects.

[Hemp] cultivation can easily be outsourced to small-scale farmers.

South Africa is blessed with a suitably sunny climate, large areas of unused land and a massive rural population in search of employment opportunities. Hemp constitutes the missing piece in the circular economy puzzle; it grows quickly, requires little water beyond regular rainfall and – as a botanical species – it is inherently pest-resistant.

This means its cultivation can easily be outsourced to small-scale farmers, and that crops can be harvested without adding any toxins to the natural environment. In fact, well-planned plantations may even contribute to the phyto-purification of previously contaminated soils.

Additionally, a hemp harvest constitutes organic, durable and comfortable textiles, outshining cotton and competing crops by far when it comes to being planet friendly. Highly nutritional oils (and yes, they are completely non-psychoactive), are widely used in the cosmetics and food industry, and may even be processed to create an alternative to plastic.

IMAGE Gareth Griffiths

It certainly ticks all the right boxes, but the deal-maker here is the fact that the cultivation of industrial hemp has the potential to substantially grow South Africa's local economy, all while providing sustainable and dignified jobs. And did we mention this will be achieved without unnecessarily impacting the planet? This sounds too good to be true, right?

Wrong. At its most base form, making hempcrete is as simple as preparing the natural organic material used in building a cob house. Sub-soil, water and natural fibres are mixed together; with the former, the hurd is used instead of straw, while building lime replaces the mud. Et voila, you have a mix that you can shape into a wall!

Hemp lime plaster and hempcrete blocks

Planters and swivelling window boxes will allow you to have edible crops inside or outside the house.

The next step is to manufacture building blocks, similar in size and shape to a concrete brick. The ingredients remain the same, but the advantages of the hemp blocks will blow your mind: they are much lighter than concrete, deliver exceptional thermal insulation, and are simultaneously breathable and inherently airtight.

In effect, the hemp makes your walls vapour-permeable, thus regulating the internal relative humidity to eliminate condensation on interior surfaces. Superior characteristics – from both an ecological and economic perspective – yield regenerative positive energy gain to boot when compared with conventional building technologies.

IMAGE Gareth Griffiths

I could go on about the material being 100% organic and therefore fully biodegradable. Or the fact that it has the potential to be a zero-waste material, because hempcrete can be re-used ad infinitum. Not to mention the unmatched sound insulation properties it delivers ...

The high liquid absorption rate of hemp also makes it both mould- and rot-resistant, plus it is resilient against microbes and insects. Best of all, as a crop it is sustainable to grow, harvest and process, making it a carbon-negative material that sequesters

IMAGE Albertus Louw

An example of a hempcrete wall

carbon dioxide from the atmosphere. (Yup, a hefty 108kg of CO_2 can be locked away as biomass per cubic metre of the hempcrete for the lifespan of a building.)

In the end, this is a simple, low-tech construction method that creates a brand-new industry and job pool, and that is particularly relevant to SA's economy. Sustainable building methods and materials do not only excite architects or rapid construction contractors, though.

Biophiles

Camilla Budden is one of a new breed of biophilic designers, and she believes that our living environment should be structured and understood "as a holistic, complex system".

"When you create a building, the interior and exterior must be integral to the landscape and environment it forms a part of," explains Budden.

"I love plants and consistently learn new life experiences whenever I immerse my hands in the soil, and one key lesson is that your garden should complement your home, and vice versa." Shade, wind protection, aural sound design, water conservation and aesthetics are a few of the factors contributing to the 'outdoor feng shui' on which biophilic design principles are built.

IMAGE Jacques Marais

It is therefore no wonder consultants such as Budden now regularly work with city planners and urban designers to ensure buildings become an integral part of a thriving ecosystem. This, in effect, brings us full circle to the reason many buyers are opting for sustainable modular homes. This market segment is booming, with out-of-the-box thinking adding to the design elements on offer from leading players entering the pod home construction game.

South Africa-based reNRG is one firm pushing new innovations in the building sphere. It aims to do much more than just create modular homes from hemp. "Our key focus is to build – if you'll excuse the pun – on and further develop existing technology, specifically our mobile app," explains CEO Machiel Marais.

84 Harrington Street, Cape Town - oficially, the world's highest building made from hemp.

"Security systems, as well as water and energy usage, will be controlled remotely through an integrated software programme," he continues. "In addition, we plan to add structural design elements to the exterior frame, for example, shaping the roof to serve as a receptacle to catch rainwater, which will then be stored in a tank integrated into the building structure."

Greywater systems and overflow irrigation will assist in conserving water use; termite-mound funnelling will organically extract hot air; while roll-out hemp awnings and planting strategic trees will contribute biophilic elements to assist in temperature control and wind protection.

Wall planters and swivelling window boxes will allow you to have edible crops inside or outside the house, depending on weather. There will even be owl boxes, chicken coop attachments or 'mini pet pods' that can be slotted into your tiny house design to enhance its environmentally focused design.

Albertus Louw, a television presenter for *50/50* on SABC 2, is currently getting his hands dirty while building his own hemp treehouse, and will be incorporating all the above principles as part of this experiential research and design experiment.

"In the end, our dedication should be to work towards finding an ultimate equilibrium, where the aesthetics of our living space combines with a regenerative environmental approach, both in practice and design," says Louw.

His story will hopefully soon be part of a documentary series.

What a well-balanced world it would be if we all worked towards a mindset where regenerative principles were first and foremost when we planned our future homes.

IMAGE Albertus Louw

THE BENEFITS OF A MODULAR HOME

There are many reasons why a modular home trumps a brick-and-mortar structure, but these points may be all it takes to change your mind.

1. **You save money.**
   Fast erection times, improved quality control and major savings on labour and transporting heavy raw materials means modular homes tend to be more affordable than their traditional counterparts. Obviously, size, design, finishes and location will affect the price.

2. **You save time.**
   Most modular homes can be erected in six to eight weeks, which correlates to a massive saving in the actual costs linked to construction. Your building team will be a fraction of the size and will be on site for approximately a third of the time, which means a huge reduction in wastage, fees, infrastructure and pilfering.

3. **You help save the planet.**
   Conventional construction is detrimental to the environment, while modular techniques are usually future-proof, using sustainable techniques and materials. Minimising transport, waste and water usage reduce the overall energy consumption during the building process.

4. **You save future costs.**
   Modular panels are manufactured to be soundproof, water- and sun resistant and thermally efficient, so in-home energy and water usage can be reduced by 50% or more compared to conventional plumbing and electricity systems.

5. **You save years (of your own life).**
   The panels used in many modular homes are made from organic materials such as wood or hemp, and these substrates are generally low in toxins. Materials that absorb less moisture (and are mould- and rot-resistant) mean an improvement in air quality, while the biophilic nature of the design helps you reconnect with nature. **GIBS**

BY TAMARA OBERHOLSTER

The Complexities of Carbon Tax

In 2019, after more than a decade of debate on the topic, South Africa introduced carbon tax – the first country in Africa to do so. Based on the "polluter pays" principle, greenhouse gas emissions now come at a cost. In theory, this should motivate large-scale emitters to change their behaviour and reduce emissions. However, South Africa's legislation is complicated and the country remains heavily dependent on coal. Carbon tax, therefore, remains a touchy subject.

In South Africa, where (according to the Department of Mineral Resources) coal remains an essential component in the country's energy mix, accounting for about 70% of our primary energy consumption and 75% of electricity generation, carbon tax was always going to be contentious. However, as Lee-Ann Steenkamp, senior lecturer in taxation at Stellenbosch University Business School wrote for *The Conversation*, the country's ratification of the Paris Climate Agreement in November 2016 signalled government's commitment to responding to climate change and gave impetus to implementing the carbon tax.

Zelda Burchell, the carbon and energy manager at EY Cova, says that the approach has been complex. "Most countries use a simple model of either carbon tax or an emissions trading scheme. When government started developing the policy for South Africa, the idea was to create a simple carbon tax, putting a nominal tax rate onto direct emissions.

But it then developed to include tax-free thresholds, so everybody gets a blanket 'allowance'. This was aimed at softening the blow of the tax initially, with the idea being to gradually start phasing allowances out."

She explains that there's no need to 'earn' the tax-free allowance – it's a given. But there are four other mechanisms available to help companies reduce their carbon tax burden, which require them to take action. These are carbon offsets, performance benchmarks, carbon budgets and trade exposure.

"Each one is almost like a science on its own," says Burchell.

Zelda Burchell

"For example, the carbon offsets category focuses on growing a carbon market in South Africa through carbon projects, which is almost like an emissions trading scheme in itself. That's what makes our legislation complex."

Carbon tax vs. emissions trading scheme

In its 2013 Carbon Tax Policy Paper, National Treasury gave the following explanation: "Carbon taxes work by pricing emissions directly, while emissions trading schemes operate by setting a cap on the level of emissions allowed. Firms are then allocated allowances (to be auctioned over time) which they may trade with other firms, depending on their abatement costs. Taxes provide certainty with respect to price, but no certainty with regard to emissions reductions. An emissions trating system (ETS), however, provides certainty of the emissions reduction levels to be achieved, but not of the resulting carbon price."

Carbon tax content

Currently, direct emissions in South Africa are taxed at R144/ton COe (up to December 2022), which is much lower than in other countries. In its 2021 State and Trends of Carbon Pricing report, the World Bank notes that "experts say prices of $40-$80/tCOe are needed to meet the 2°C goal".

However, National Treasury communicated that it opted for a low rate to start, in order to "provide current significant emitters time to transition their operations to cleaner technologies through investments in energy efficiency, renewables and other low carbon measures".

In 2019, the carbon tax implementation plan announced was to comprise two phases; the first running from 1 June 2019 to 31 December 2022, and the second phase from 2023 to 2030.

In Phase 1, the price of electricity would remain unaffected. But, in Phase 2, Treasury said, allowances would be phased down, and there would be a review of the impact of Phase 1, which would "be subject to the normal transparent and consultative processes for all tax legislation". However, in February 2022, new policy changes were introduced.

New developments

On 23 February 2022, the National Budget Speech included several carbon tax updates, including an increase in the tax rate to R144 (roughly $9), effective 1 January 2022, with intentions to increase the rate by at least $1 annually until it reaches the rand equivalent of $20 by 2026 (to uphold South Africa's COP26 commitments). From 2026 onwards, carbon tax will increase more rapidly to $30 by 2030.

We need to ask whether all voices are being heard.

Secondly, Minister of Finance Enoch Godongwana announced that the roll-out of Phase 2 would be delayed, extending Phase 1 until 31 December 2025, meaning most tax-free allowances continue until 1 January 2026.

However, Burchell says there is still much confusion surrounding the upcoming changes. "For some companies, the carbon tax impact has not been that significant yet, but for companies with significant emissions (such as in the cement and petrochemical sectors) the impact is substantial," she says. "It is also becoming more material for the companies that have not been impacted as yet due to the changes proposed by National Treasury. Many companies have indicated that some of these were proposed without adequate consultation before publication and therefore came as a surprise to business. In addition, there is still significant uncertainty around the design of the tax for the second phase. National Treasury has not disclosed this information, which has been requested by business for a long time."

For example, carbon budgets (essentially a cap against which an entity's emissions are tracked), which have been voluntary until now, are expected to become mandatory from 1 January 2023. Burchell says there is currently no legislation in place, but the proposal of a carbon penalty of R640 if a company exceeds its carbon budget is concerning for business.

Burchell says what is most concerning is the pass-through of carbon tax on the price of electricity expected from 2026. "This will have an additional significant cost impact on every person in South Africa," she says.

Dr. Roze Phillips

This is precisely what worries Dr. Roze Phillips, GIBS board member and faculty at its Centre for Business Ethics. "Yes, we've got to consider climate change in the context of saving our planet, but we can't do that without thinking about social justice and the just transition of people and communities to a zero-carbon world that is also economically sustainable for them," she says. "We need to ask whether all voices are being heard. We have to look at the issue of carbon tax from a climate ethics position, and in terms of inclusive futures."

Pursuing an inclusive future

"Many people don't recognise that the preferred future – the most sustainable future that we are looking towards – is not the perfect future, but is the most inclusive one," says Phillips. "It must be inclusive of all peoples, and it must be inclusive of planet. We can't disregard one for the other."

She cautions against viewing carbon tax as a silver bullet, and says that, as a capitalist solution to a social problem, it has its limitations. "I also worry that it's a short-term solution to what is really a long-term problem. While it's a great political vehicle, it's indirectly another tax on the poor."

The World Bank raises some of these concerns in an exploration of the limits of what carbon tax can achieve. "There are good reasons why governments may not want to use carbon taxes, and one of them relates to their welfare impacts," writes Roumeen Islam, economic adviser at the Infrastructure Practice Group of the World Bank.

"For example, a carbon tax on fossil fuels is often regressive in its impact – hurting poorer people relatively more than richer ones. Even when it might be progressive, poorer people still suffer a welfare loss when prices rise, making their consumption basket more expensive. Devising transfers to compensate them for this loss is not a simple matter. Compensation systems may not be well developed, and it may be difficult to identify those hurt or to get funds to them. Thus, even if governments impose a tax, they may still baulk at levying a carbon tax high enough to reduce emissions to the extent they desire."

Growing the carbon offsets market

Burchell says that one of the opportunities within South Africa's legislation is that carbon tax can stimulate a carbon offsets market, where carbon credits are traded.

The background is a bit complicated, but, basically, the idea dates back to when the Kyoto Protocol was developed in 1997. There was a project-based mechanism laid out called the clean development mechanism, which would allow countries with an emission reduction target under the Kyoto Protocol (Annex I Parties) to implement greenhouse gas reduction or removal projects in non-Annex I Parties to generate certified emission reductions (CERs).

It's indirectly another tax on the poor.

In other words, these CER units would function as carbon credits that could be bought and sold to help countries meet their targets.

Burchell notes that while the market for "carbon credits" in South Africa fell flat for some time due to effective global oversupply of CERs, the implementation of carbon tax has resurrected the idea, but this time to help businesses to offset the carbon tax for which they are liable. "Suddenly, there's a big demand for carbon credits, and not enough to go around," she says.

Increased demand is good news when it comes to incentivising investment into qualifying green projects, such as solar power, landfill-gas-to-energy or reforestation. This creates opportunities for job creation, community upliftment and entrepreneurship.

"Creating carbon markets allows communities to get involved and to have agency," says Phillips. "They can own a tradeable resource and benefit from it. It's also a collaborative approach, rather than a punitive one, like a tax, which is important if we're to collectively take ownership of our future."

Carbon tax and ESG

Whereas investors might once have bypassed countries with additional tax requirements, as attracting new foreign direct investment increasingly depends on having solid environmental, social and corporate governance (ESG) in place, countries with carbon tax are likely to become preferred locations for setting up shop.

KEY TAKEAWAYS

Burchell says that carbon tax in South Africa is expected to become significant to such an extent that companies should already be to starting thinking about a completely different business strategy, including a net-zero roadmap.

"Businesses need to model the expected financial impact for the longer term and to consider all the potential impacts," she says. "This will help them to plan early on. Many exporters will also need to look into the carbon border adjustment mechanism. Companies exporting certain products to the EU are likely to pay significant duties on the emissions intensity of their products. This will be effective from 2026."

Key sectors that will be impacted include aluminium, iron and steel, and fertilisers. GIBS

BY CARA BOUWER

Are Marketers Both the Problem and the Solution?

There can be no business-as-usual for marketing professionals in a world where stakeholder sustainability, wellness and value creation are the new markers for success.

"Marketing has been told time and time again that it is the source of problems of unsustainability," says Dr. Victoria Hurth, fellow at the University of Cambridge Institute for Sustainable Leadership. This negative impact stems from concerns about the use of marketing spin to 'greenwash' supply chain and operations issues, while pushing a consumption and growth agenda over quality and durability.

However, "marketing also holds the key to turning the situation around", says Hurth, who is part of the team at Cambridge behind an eight-week online course designed to help marketers and media creatives rethink their future role and find ways to "align marketing with a sustainable future".

Realigning marketing to a sustainable business agenda is not just a nice-to-have, it's increasingly becoming an vital aspect of strategic planning. This is the view of Astrid Ricketts, a Cambridge alumna and Middle East / Africa sustainability director for market research company Kantar.

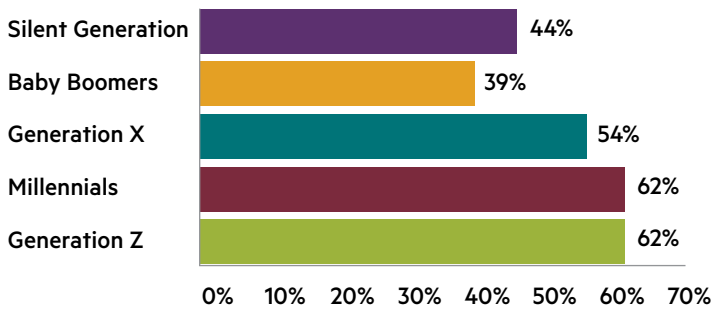
"Marketing needs to change," says Ricketts, stressing that for fundamental and widespread changes to be effective in a corporate setting, marketing has an integral role to play.

"But it starts with purpose and shared value, which is different from harvesting value and becomes instead about the value for society and business."

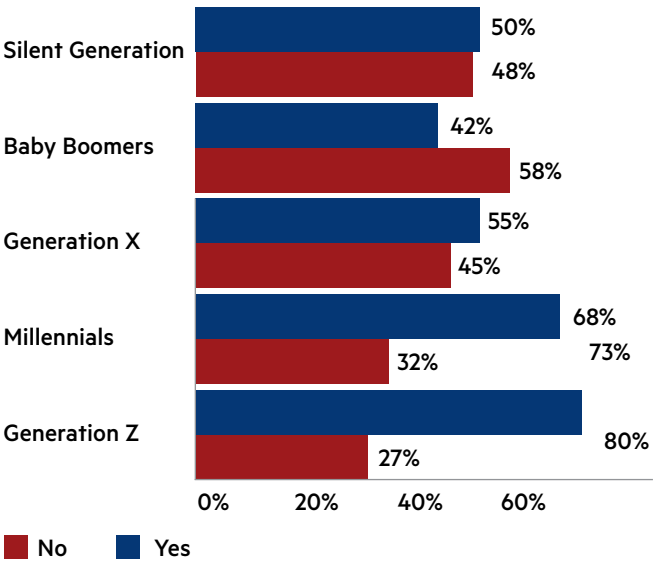
A generational driver

Ricketts is only too well aware that it often takes a crisis point for human beings to be galvanised into change – and action. However, there is another push factor currently at play globally: the increasingly sustainable consumer patterns of the Generation Z (11- to 26-year-old) and Millennial (27- to 42-year-old) cohorts. Individuals in these generations vote with their wallets, and in accordance with their personal values. According to research from First Insight, three-quarters of Gen Zers surveyed in the USA (and almost the same number of Millennials) were prepared to spend more for sustainable products, while over half were willing to pay above 10% more for sustainable brands.

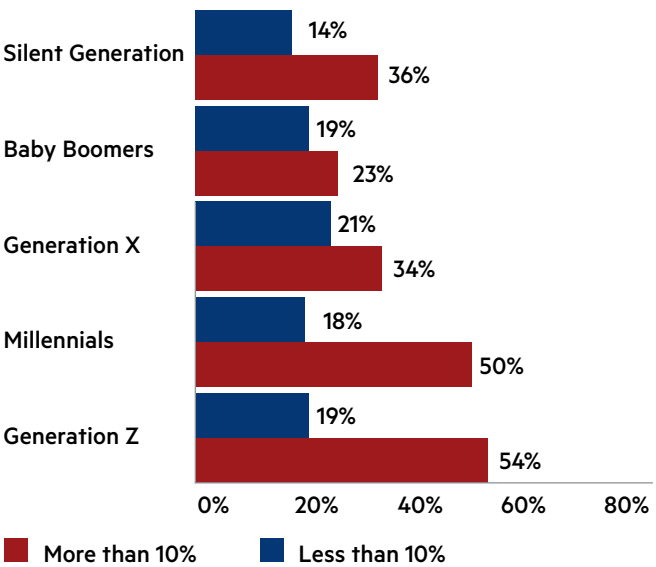
Prefer to buy from sustainable brands



Are you willing to pay more for sustainable products?



How much more are you willing to spend for sustainable products?



Source: First Insight

These insights point to an increasingly ethical and sustainability-driven generation, around which marketing and consumer messaging must evolve. These youngsters are, noted a recent *Forbes* article: informed, value-oriented, engaged, political, and willing to make decisions on where to live, work and study using a climate change lens. While those are broad descriptors, this new demographic is by no means uniform the world over.

Africa's youth: A breed apart

For young Africans, for instance, sustainability takes on a different hue to that of their northern hemisphere contemporaries.

Ahead of the COP27 summit at the end of 2022, Uganda's Evelyn Acham told *Vogue* magazine, "My country Uganda is experiencing extreme weather events like very long dry seasons, which dry up water sources and food, affecting food prices, leaving many with no food to eat or clean water to drink. The drought leads to other challenges, like women sourcing food and water from far-off places. This exposes them to other risks like trafficking, [as well as] sexual and domestic violence."

In the same feature article, Raeesah Noor-Mohamed commented, "South Africa is facing a number of extreme climate-related events: heat waves, floods, droughts. Because of the lingering effects of colonialism and apartheid, the people in my country are already suffering and most of the population are ill-equipped to deal with additional crises."

As Ricketts explains, for young Africans sustainability goes hand in hand with addressing social needs. Referencing age-specific data gathered for Kantar's Sustainability Sector Index 2021, she notes that, "In Africa, if we are thinking of sustainability as a concept and [in terms of] the 17 sustainable development goals (SDGs), these are more in the social area than the environmental area." This trend is consistent among Africans of all ages.

Astrid Ricketts

Stressing the importance of encouraging and listening to African solutions and innovations, Ricketts adds, "The conversation in Africa has to be different. To give an example, this whole idea of decarbonising the economy when you haven't even carbonised yet ... is almost offensive. We need to be able to have prosperity and development in a sustainable way. The global north didn't do it, we cannot be the teachers, because we messed it up. So there has to be an African way, an African solution. And what is that going to look like?"

For young Africans ... sustainability takes on a different hue.

A different, social focus

Discussions around inequality and supporting Africa – and other emerging markets – on their green energy transition featured strongly in the build-up to COP27, including an Africa Finance Corporation white paper which Ricketts singles out, called Roadmap to Africa's COP: A Pragmatic Path to Net Zero. This paper suggests an approach that focuses on developing local industries, building robust and resilient infrastructure and 'finnovating' (ensuring African institutions can access climate funds using financial innovation).

On the ground, however, the "big issues in Africa and the Middle East are poverty and hunger, really across all markets", says Ricketts. For many in these regions, across age groups and LSM marketing categories, SDG 1 (eradicating poverty) and SDG 2 (zero hunger) are more important and immediate threats than "concerns around plastic waste in the oceans".

The idea of local production and local manufacturing is huge.

In addition, says Ricketts, "Healthcare [during Covid-19] was a big one. Out of the more environmental/climate topics, water was the one that most people were concerned about, and air pollution or pollution in general. Linked to poverty and hunger was concern around the affordability of education, because people see education as a way out of the problems they are facing."

This is not, she stresses, an indicator that Africans don't care about sustainability – but they view SDG priorities differently.

"People in Africa see sustainability as a solution to economic power and economic growth," says Ricketts, pointing to the value placed on local production and Africa-made brands and creativity, particularly among younger Africans. "They understand, for example, that locally produced things are not only good from an environmental point of view, but they also feed the local economy. So, the idea of local production and local manufacturing is huge."

For brands and marketers this represents a significant opportunity. "We tell our clients all the time that if you're an international corporate, the first thing you can do is to invest in the local economy in Africa," says Ricketts. "You're going to get value from it, but also consumers are going to thank you for it because you're investing in the local economy. The idea of shared value between corporations, consumers and society is hugely important, especially in Africa, because it's a very community-based culture."

Trust and transparency

What is equally important is approaching consumer engagements with openness and honesty. It's paramount, says Ricketts, noting that it must be supported by a clear corporate purpose. "It's no longer enough to just produce a product, you have to have a purpose in society. You have to deliver shared value," says Ricketts.

If companies are not honest about what they stand for and what problems they are going to solve, or if their public utterances don't match up with actions, then consumers will call out these discrepancies. "Consumers are increasingly aware of this, so you have to be transparent," says Ricketts. "If you're not reaching the goals you set for yourself, just say it. Be honest about it. If you're not honest about it, and it's uncovered ... that really damages brand equity."

Even organisations well advanced on their sustainability journeys, such as Unilever, don't always get it right, says Ricketts. However, the point is to let go of old paradigms and start on the journey.

As Cambridge's Hurth said during a podcast discussion with marketing and sustainability commentator Neil Wilkins, "re-culturalising yourself to a new agenda is not an easy or quick process". This applies to both individuals and organisations, and particularly to evolving corporate roles such as marketing, which Hurth describes as "the heartbeat of value creation for an organisation".

If this beating heart isn't in sync with the needs, hopes and aspirations of consumers – particularly those in the vocal younger generations – then companies have a problem. Greater alignment between corporate utterances and action is a clear solution, which means moving marketing beyond a mouthpiece role to that of value driver.

ESG and marketing strategy

ESG and sustainability are shifting the dial for marketers from a consumer-focused, growth and profitability mandate to one with a decidedly more strategic intent and with a focus on achieving alignment between purpose and the public face of a business.

Kantar's Astrid Ricketts warns, however, that setting a sustainability strategy based solely on "internal opinions and agendas" is a hiding to nothing. It needs to be based on consumer evidence, industry insights and reality. Marketing, in turn, needs to uphold those values and that purpose, ensuring both internal and external alignment.

"We might think of marketing as advertising and sales," Dr. Victoria Hurth told The Neil Wilkins Podcast, "but maybe we are only thinking about it like that because business as usual has forced it to become that. And, actually, no organisation can deliver anything of value unless its value-creation nerve centre – i.e. marketing – is aligned in that direction with the value you want to create."

To this end, Ricketts notes how important it is to "connect your sustainability strategy to what consumers expect from you and your category; it needs to be category specific. If you can connect those two things – consumer expectations and the focus areas of your broader business category – then then you get this perfect sort of strategy that is going to benefit you and the world."

If you are uncertain about how to start tuning into fundamental drivers impacting your business category, then Hurth offers some sage advice. "You just need to read the World Economic Forum Global Risk Report and then go one level deeper than that and you are in that domain ... because actually you are tapped into what is shaping what is going on," says Hurth.

This sort of direction should serve as a beacon for marketers to better align their efforts with authenticity to ESG commitments and goals, be they social or environmental.

KEY TAKEAWAYS

- Marketing has been blamed for being the 'source of problems of unsustainability'.
- Aligning the profession to support a sustainable future will require clear purpose and direction at a strategic level.
- Crises such as climate change are forcing a shift in consumer behaviours and company awareness, but another push factor is the younger Generation Z and Millennial consumers, who vote for sustainability with their wallets.
- While marketers should align messaging to an increasingly ethical and sustainability-driven youth generation, it is critical to note how views on sustainability differ around the world.
- In Africa, focusing on poverty and hunger – together with issues such as local production and community support – carry more weight than environmental concerns. This highlights the need to tailor marketing at a region and country level. GIBS

BY TAMARA OBERHOLSTER

Becoming a Climate Designer

One young woman's example illustrates how shifting the climate narrative from a dull duty to an exciting aspiration can even be implemented in businesses.

Jess Jardim-Wedepohl is a designer at Snapplify and a Climatebase and Terra.do fellow. She first found herself becoming interested in climate change when she decided to become a vegetarian for ethical reasons, and later a vegan. As she figured out her new diet, doing lots of reading and watching videos online, she stumbled across a YouTuber, Shelbizleee, with a Bachelor's degree in Environmental Science and a passion for sustainability, who introduced her to the concept of a 'climatarian diet'.

"I remember being very anxious about it for a while because I realised that the only way to have no impact on the planet is to not exist," she recalls. She started to explore the idea of moving her career to focus on climate action. "I discovered Climatebase, which is the largest platform for climate jobs in the world."

While she didn't have much success looking for a climate job, as most were US-based, she applied for a Climatebase fellowship and was accepted. "It's basically an eight-week crash course in every sector touching climate, from transportation to agriculture to energy."

Jess Jardim-Wedepohl

The doom and gloom narrative doesn't get anyone out of bed.

Jardim-Wedepohl found the experience not only interesting, but reassuring as she discovered people around the world with an interest in climate action, engaging in it in every different field. She then applied for the climate designers fellowship through Terra.do, an organisation aiming to get 100 million people to work directly on climate in this decade.

While the Climatebase fellowship had seemed geared towards technology and Silicon Valley start-ups, the climate designers course was smaller, but approached climate from a broader perspective, looking at wide-reaching issues, such as decolonising climate activism.

There was also a project component and Jardim-Wedepohl partnered with a designer in India, Valiullah Hashmi, and one in Ireland, Kimberly Goes, to develop a concept for a board game that would help designers to think differently about what she calls "big scary issues".

She says the 12-week course helped her to realise that not everyone has the luxury of a complete career change, but she could use her existing skills to play a part in climate action – her work in education (and specifically in access to education) is a climate solution in itself.

What is a climate designer?

Marc O'Brien describes himself as "a climate designer, strategist, educator, and human". The co-founder of Climate Designers says his work has always fallen under the umbrella of social impact. In 2016, he co-founded a creative studio that helped climate organisations with branding, messaging, marketing, innovation and strategy work. It functioned as a collective, pulling in skills from various independent creatives per project, as required.

As interest in climate action increased within the design community, O'Brien approached Sarah Harrison, and, after brainstorming how to get more designers involved in climate action, the two quickly set up a landing page for what would become Climate Designers.

"The call to action was to sign up when we launch," O'Brien says. "We didn't really even know what launching meant, but we got a tremendous number of subscribers."

In 2019, as wildfires in Australia and the Amazon elevated the conversation around climate change to new levels globally, and activists such as Greta Thunberg grew in prominence, Climate Designers launched. Today, there are more than 3 300 members and 18 chapters globally. The first African chapter, based in Nairobi, is being onboarded (at time of writing).

"We have two podcasts – one more general and one dedicated to design education, because we really want to bring climate education into the design classroom," says O'Brien. In 2022, Climate Designers won the Future Voice Awards from the Interaction Awards, an initiative of the Interaction Design Association (IxDA).

Marc O'Brien

In 2023, the organisation (currently entirely volunteer-driven) is looking to transition to a sustainable cooperative model. The by-laws are already written and the change is in the works.

Who doesn't want a future where there's enough food and clean air?

Climate Designers has also turned its existing content from a two-week summit in 2021 and training material developed for a San Francisco-based creative studio into a course for Terra.do, and has successfully put two cohorts through this fellowship, with a third planned for the first part of 2023.

"We're coming at it from a very interesting perspective where we want to bring more awareness around things like colonialism and consumerism, capitalism, individual action versus collective action, climate justice narratives, messaging, and behaviour change," says O'Brien. "We're not teaching any one specific vertical when it comes to design specialties; we're coming at it from a more holistic standpoint, so that any designer (whether you're in fashion, graphic, UX, UI) can still apply this stuff to your work."

Why design?

O'Brien and Harrison believe that designers can have an enormous effect in terms of climate action. "Look around you. Everything around you is designed; has been touched by a designer," says O'Brien. "From the clothes that you wear, to the objects on your desk, the devices that you interact with, the things that you read and see out in the world, the things that you watch. We recognise that design shapes culture and that every designer has the responsibility and opportunity to either positively or negatively impact that."

Shifting the climate narrative

While climate activism has historically focused on telling people what to stop doing (whether it's cutting down on plastic waste or minimising reliance on fossil fuels), O'Brien believes we need new narratives.

"We need to go from, 'Hey, the world's on fire; we're all screwed' to something more positive and hopeful. Because the doom and gloom narrative doesn't get anyone out of bed. It doesn't excite anyone to do the work. It doesn't motivate people," he says.

Instead, he uses an approach he calls 'doom and bloom', which acknowledges the dire state of affairs and how it will worsen if nothing is done, but then focuses on the opportunity to be part of addressing this. "I see designers more as opportunity-seekers as opposed to problem-solvers," he says.

Rather than focusing on selling a particular behaviour or idea (which can get mired down by politics), he suggests imagining what a better future would look like. "Who doesn't want a future where there's enough food and clean air?" he asks. "We've got to start there. That's how we get more people onboard, get companies involved."

Getting practical

Jardim-Wedepohl readily admits that the actions of a single individual can't make a measurable difference and might not always even be practical (for example, as a woman in Johannesburg, it wouldn't be safe or viable for her to get rid of her car and cycle everywhere). However, the old adage is true: actions speak louder than words. She says it's been shown that credibility increases when it comes to having climate conversations when people see individuals taking action in their own lives. Individual and systemic change are both needed.

"Atmospheric scientist Katharine Hayhoe, who works for The Nature Conservancy in the USA, always talks about how the biggest individual action you can take on climate is to have conversations with people in your life about it," says Jardim-Wedepohl. "That's hard to do. But one of the things that I've found really helpful in terms of initiating private conversations with people is to approach it through the lens of something that they already care about."

She adds that it's important to do this in an empathetic way, and to admit one's own shortcomings.

Cynically, this approach also works for business, which has traditionally cared most about profit. "I like to say that you can't do business on a dead planet," says O'Brien. "Nobody is going to be concerned with buying your product when they're worried about a wildfire approaching their home. I truly believe that companies who aren't taking climate action are going to become irrelevant. Every single company, every single job needs to be a climate company or a climate job, no matter whether it started out that way or not."

Within educational institutions, he believes we should be looking at climate change the same way we should look at ethics – as something that underpins everything that is taught, rather than an add-on or elective course here and there.

"We need to ask tough questions about existing protocol, existing methodologies and processes and frameworks that might need to be re-evaluated in today's world," he says.

You can't do business on a dead planet.

"Companies and business schools should bring in experts to educate management and to start to think about the impact beyond what people do day-to-day within an organisation. At the same time, we need to acknowledge that this is all new to all of us. As human beings, we've never experienced anything like this as a species. There is no guidebook. We also need to learn how to be okay saying 'we don't know' and to be okay with that. We need to learn how to experiment and really try things and be okay if they don't work – not in a Silicon Valley approach of 'move fast and break things', but where we take lessons, learn and share that knowledge. This needs to be a collaborative effort."

Helpful resources

Climate Designers: Aimed at anyone working in or interested in design, Climate Designers is a hub of knowledge and skills and a professional network for designers to take climate action.

Project Drawdown: A resource for climate solutions that aims to "help the world reach 'drawdown' – the point in the future when levels of greenhouse gases in the atmosphere stop climbing and start to steadily decline, thereby stopping catastrophic climate change – as quickly, safely, and equitably as possible".

Terra.do: Offering a range of climate education initiatives, Terra.do caters for individuals, organisations, investors and professionals working in specific fields.

Women+ in Climate Tech: Through its Mentoring the Future programme, Women+ in Climate Tech aims to "spark the interest and confidence in women pursuing careers in climate technology". Applications open for the next intake in February 2023.

South Africa's Survival Guide to Climate Change: This book by Sipho Kings and Sarah Wild explores "what climate change is likely to mean for us as South Africans, how we can prepare for it, and how we can – in our everyday lives – help to mitigate the impacts it will have." Published by Pan MacMillan South Africa and available from various book retailers. GIBS

BY EUGENE YIGA

A Planet in Peril

Despite the world's challenges, historian and author Yuval Noah Harari believes that it's not all doom and gloom.

Disease, War, Famine and Death: these are the four horsemen of the apocalypse. And given what the world has been through in the last few years, they seem to be roaming the planet and signalling that our time is up.

"I don't think history is deterministic, which is why we can't predict the future," says Yuval Noah Harari. "And we can't be certain that the apocalypse is coming or [that] the end of days is coming. This is something humans have always felt – that some huge, terrible calamity is just around the corner. Sometimes it happens when you're born. But often it doesn't."

Humanity has the power to solve its problems

Instead of trying to prophesy the future (something we've never been able to do anyway), Harari finds it more valuable to remember that the future depends on the decisions we make in the present. This requires understanding that humanity has enormous power and responsibility to shape the world.

"All the problems are big [and] worrying," he says. "I worry a lot about them. But none of them is an inevitability. None of them is unsolvable. Humanity has not just the scientific knowledge [but also] the economic resources to solve all [its] problems, including climate change."

It's not too late to reverse climate change

Even though the world has been hitting the snooze button on the climate crisis for just a few more minutes of unrefreshing sleep, we have now woken up to the painful reality that we are heading toward disaster. But it doesn't have to be this way.

"I'm worried about people losing hope – about people feeling that it's now too late to stop the ecological catastrophe," Harari says. "It's not true. We don't have a lot of time. But if we make the right decisions, we have the economic resources and the scientific knowledge to prevent it."

We must invest in the right technology and infrastructure

What will it take to prevent catastrophic climate change? Just 2% of global GDP invested in the right technology and infrastructure. Even though Harari admits that this is still a lot of money, it's a small price to pay in the grand scheme. More than that, we as a

We can't be certain that the apocalypse is coming.

species are good at shifting resources when required. This means that the climate crisis isn't an inevitable destiny nor is it about a lack of resources. Instead, it's due to 'bad political decisions'.

"When I look at the world today [and] in the last few years, we are running in the wrong direction," he says. "So I can't say that I'm optimistic; maybe it will all go to waste. Maybe the civilisation that we've built will collapse. But it's not inevitable. It's because of our decisions. And it's not too late to make different decisions."

Degrowth is not an option for much of the world

One thing that's prevented us from taking action is the hyperfocus on growth. Harari considers it the most important idea of modernity, with many regimes, ideologies, and religions seeing and accepting it as "the ability to solve everything".

"It doesn't matter if you call yourself socialist or capitalist, Jewish or Muslim, a dictatorship or a democracy – everybody believes in growth," he says. "It's the number one goal. Now there's a lot of criticism of growth – that it's unsustainable – but for much of the world growth is essential."

The climate crisis isn't an inevitable destiny.

Sustainable growth is key

Indeed, while Western nations and affluent societies can talk about degrowth, for the billions who live without electricity or running water, growth is their way to health and wellbeing. But getting everyone to a basic level of comfort would have a terrible ecological impact unless we grow sustainably.

"When you look at the rich people [too], I wouldn't frame it as degrowth because people don't want a reset," Harari says. "People don't like to lose. People don't want to go back. People don't want to have less. The question is: what do people really want?"

Society should meet its needs in better ways

We need to have growth when it comes to our deep psychological, social and spiritual needs. But we can do that without destroying the planet. For example, instead of flying halfway around the world to connect with friends or (ironically) to enjoy nature, we can find other ways to do so that don't have such a big carbon footprint. In other words, it's not about negating the needs; it's about meeting them in a better way.

"The shift from physical records and CDs to having everything digital – ecologically it was good," Harari says by way of example. "It's less physical stuff being produced and moved around. But we didn't tell people to give up music [because] it was causing too much pollution. We found an even better way to share and enjoy music which doesn't harm the ecological system so much."

A pandemic is now a political failure.

Prof. Yuval Noah Harari

Catastrophes are increasingly our own doing

As we become more powerful, we also have more control over the world. This means that the bad decisions we make also have consequences that are far more horrendous than they would otherwise have been. Indeed, Harari observes that much of what the world is going through is our own fault.

"For much of history, the unforeseen catastrophes that befell humans were not their own fault, or at least not directly their own fault," he says. "If you think about something like the Black Death, this was an uncontrollable force of nature. The fact that humans opened trade routes made it easier for pathogens and diseases to travel. So this partly explains the Black Death. But, ultimately, it was a force beyond human control."

The pandemic is a political failure

When this plague killed between 75 million and 200 million people, nobody understood what was happening or how to stop it. They thought it might be divine punishment, black magic, or something else. But because they didn't know the truth, they were helpless. In the face of the Covid pandemic, the situation is different.

"It took two weeks to identify the virus [and] a year to develop effective vaccines," Harari says. "We are not helpless in the face of pandemics anymore. So a pandemic is now a political failure. It's not a natural disaster."

We are entering a new era of war

The same is true of famine. For much of history, it was a natural disaster caused by drought or flood that nobody could control. Now, according to Harari, the only famine that exists is "political famine" because "some politician wants there to be famine or doesn't do enough to prevent it".

The same is also true of war. For much of history, it was thought that brutality was simply part of human nature. But we've shown in recent generations that we are capable of building international institutions and norms that drastically reduce violence.

"We have been living in the most peaceful era in history, not because of some miracle of God but because of institutions that humans built," he says. "And now we are entering a new era of

war, not because the devil did something but because humans neglected the institutions they built. It's like if you build a dam and then you neglect it, it falls down [and] you have a flood."

We can rebuild the institutions that protect us

Harari believes that the decline of the institutions that kept world peace began with Brexit and the election of Donald Trump. This was when the leading countries in building rule-based frameworks signalled to the world that they no longer cared about this.

"It's no wonder that the institutions are falling apart and that we are coming back to the era of war," he says. "But this is all human action. And, therefore, it's not too late to reverse course – to rebuild the dams and to rebuild the institutions that protect us from pandemics, famine, and war."

Organised people can have a big impact

Harari believes that real change is always about institutions. Indeed, the fact that 50 organised people can have a much bigger impact than 500 individual activists is something oppressive regimes know, which is why the number-one job of every autocratic state is to break down any alternative institution or organisation, no matter what.

"In the extreme cases of totalitarian regimes, every time people in significant numbers meet it must be under supervision," he says. "So you can't have a football club, an environmental organisation, or a charity unless it's sanctioned and directed by the party or the regime. Because whenever people get together for any reason and build trust and learn how to cooperate, this is a threat."

Instead of fearing this reality, democratic societies embrace it. This, Harari says, is the basis for everything, from successful revolutions to lasting social change. "So [for] anybody who wants to change the world, the question they face is, ultimately, how [to] build institutions that incorporate our ideals," he says. "An ideal that has no institution to implement it will not succeed."

Books from Blinkist

If you haven't read Harari's books, here are summaries from Blinkist (which is offering *Acumen* readers a free one-week trial):

- *Sapiens*. Beginning with the development of language and common myths that tie our social fabrics together, human civilisation has been getting more and more sophisticated – leading to the interconnected global village we have today.
- *Homo Deus*. Our world is changing and will continue to change. If we better understand our history and how it made us who we are today, we can have a more secure idea of where we will be in the future.
- *21 Lessons for the 21st Century*. Although the 21st century has brought fears of terrorism and mass unemployment, we should remember that, ultimately, the key to our prosperity and security remains in our own hands. GIBS

PROF. YUVAL NOAH HARARI

Prof. Yuval Noah Harari is a historian, philosopher and the bestselling author of Sapiens: A Brief History of Humankind, Homo Deus: A Brief History of Tomorrow, 21 Lessons for the 21st Century, and Sapiens: A Graphic History. His books have sold 40 million copies in 65 languages, and he is considered one of the world's most influential public intellectuals today. Born in Israel in 1976, Harari received his PhD from the University of Oxford in 2002, and is currently a lecturer at the Department of History in the Hebrew University of Jerusalem. In 2019, following the international success of his books, Yuval Noah Harari co-founded Sapienship with his husband and original agent, Itzik Yahav. Sapienship is a social impact company with projects in the fields of entertainment and education, whose main goal is to focus the public conversation on the most important global challenges facing the world today.

BY GAYE CROSSLEY

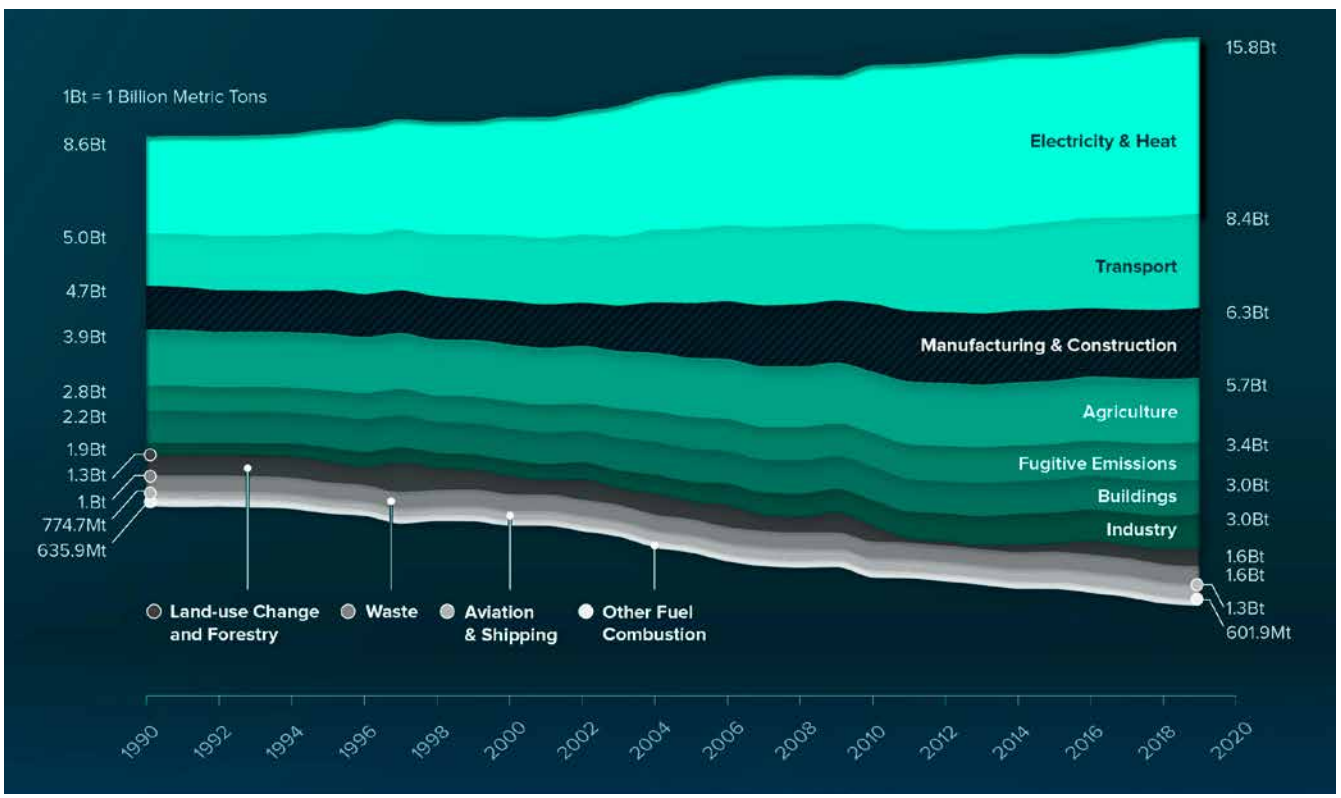
It's The Law

But it's less about compliance and more about business risk

Climate change is becoming a business imperative. Its effects are being felt across the world, and now, businesses are being forced, by law, to do their part in mitigating the risks and adapting to a new reality.

South Africa's Climate Change Bill gives a good legal definition of climate change: "*Climate change* means a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods."

This definition clearly states that climate change is directly linked to human activity. These activities can primarily be connected to the production of energy and goods, transport, and the alteration of the natural environment. In a nutshell, this refers to business activities.



Source: https://www.visualcapitalist.com/sp/the-biggest-contributors-to-climate-change-by-sector/

South Africa and climate change legislation

Over the last two decades, South African climate law has evolved to keep up with what is happening on the international stage. Andrew Gilder, a director of Climate Legal, says, "We've seen policy and law evolving around the five core issues that are dealt with at the international level – primarily mitigation and adaptation, but also capacity building, finance and technology transfer."

Over the last five years, however, the South African government has become even more focussed around climate change issues. "We have seen government moving towards a much clearer articulation of what South Africa and South African companies need to be doing to contribute to the global response to climate change," says Gilder.

From a local legal point of view, business needs to know where South Africa stands in terms of its regulatory frameworks. Gilder explains that there is "quite a complex and evolving legal ecosystem" which is intended to support the national contribution to the international climate change response.

The South African legal frameworks around climate change include:

- **the Constitution,** which entrenches the right to an environment not harmful to health or well-being.
- **the National Environmental Management Act of 1998**, which doesn't reference climate change but provides a basis for managing the environment, such as the principles of sustainable development, precaution and polluter pays.
- **the National Air Quality Act 2004,** which provides for a national air quality legal regime. Air quality and climate change are different technical and legal concepts because air quality is a local concern while climate change is an international issue.
- **the National Greenhouse Gas Reporting Regulations and the National Pollution Prevention Plan Regulations of 2017,** which require reporting of greenhouse gas emissions under the South African Greenhouse Gas Emissions Reporting System, and the development and implementation of emissions management plans. These laws, along with the Carbon Tax Act, are linked to the Climate Change Bill.
- **the Carbon Tax Act of 2019,** which was first envisioned in 2006 but only became law in 2019.
- **the Climate Change Bill (B9-2022),** currently before Parliament which, when passed, will be the country's flagship legislation on climate change.

South African law is growing teeth to force greater compliance.

The Climate Change Bill

Gilder and Olivia Rumble – who is also a director at Climate Legal – are specialist climate change legal advisers to Government for the drafting of the Climate Change Bill, and had hoped for a dedicated climate change statute some years ago. Administrative and other delays, however, means that they are now hoping that the Bill becomes law this year.

Andrew Gilder and Olivia Rumble

Rumble explains that the Bill seeks to "ramp up the existing monitoring, reporting and planning regime and to introduce a system of carbon budgets that cover reportable and taxable greenhouse gas emissions." Companies and large-scale emitters will be allocated "carbon budgets," and will be required to take steps to reduce their greenhouse gas emissions to remain within their set budgets. Rumble believes it is likely that businesses that over-shoot their allocated carbon budgets will pay punitive levels of carbon tax on excess emissions.

Rumble stresses that Government has been transparent in forewarning business that carbon budgets are coming. A system of voluntary carbon budgets has been in operation for some years and businesses have had the opportunity to start working on their long-term capital expenditure and operational expenditure costs

to manage their transition to compulsory budgets. Gilder notes that once the Bill is enacted as legislation, companies are likely to still have a number of years to 'learn by doing' before they get sanctioned for non-compliance.

The Bill also addresses the country's greenhouse gas emissions trajectory. The Nationally Determined Contribution describes the commitment that South Africa made under the Paris Agreement to reduce its national emissions trajectory. The Bill will effectively turn South Africa's commitment into national law and make it legally binding on the government, business and civil society. In addition to companies having carbon budgets, whole sectors will also have carbon budgets, such as departments of energy, transport, and agriculture, as well as municipalities. They will all be legally obliged to have plans in place to assist in meeting the national targets, and this will impact businesses operating within these sectors and regions.

The business risk of climate change

While South African law is growing teeth to force greater compliance, it is still relatively lenient. Brandon Abdinor, a climate advocacy lawyer at the Centre for Environmental Rights, says, "National Treasury has proposed to progressively increase the carbon tax till 2030. By when, we'll be looking at a carbon tax of up to $30/tonne. Global expertise suggests that for a country like South Africa it should be around $75/tonne by 2030. That's still low. If you look at the social cost of carbon, which measures the financial impacts of carbon emissions on society, conservative estimates suggest carbon tax should be $300/tonne. But if you truly think of what it means, some experts say it should be as high as $3 000/tonne."

Professor Tracy-Lynn Field

Professor Tracy-Lynn Field, who is the Claude Leon Foundation Chair in Earth Justice and Stewardship at Wits University, however, says that businesses need to stop viewing climate change purely from a legal compliance perspective. She says that businesses need to understand the business risk of *not* addressing the issue.

Prof. Field says that while climate change is a very emotive issue, it is critical for business to engage with the climate science. "There is a lot of research on this, brought together by the Intergovernmental Panel on Climate Change's review process, which brings the rigour of science and rationality to the issue," she says. "We have 20 years of work to draw on."

But if the state of the environment and the accompanying laws are not enough to motivate businesses to change, then the economic risks may be more effective. Field notes the threats are real. In two of her case studies, businesses with sunk investments had to invest R14 million and R400 million, respectively, to adapt their businesses to survive the impacts of climate change. This is not including the cost of lost operational capacity.

South African businesses, depending on their location, face the physical risks associated with climate change that include increased risks of floods, tropical cyclones, droughts, wildfires and heat waves. These events will put additional pressure on water and food security, explains Abdinor, and will see people migrating from heavily impacted areas, which is another risk for businesses who are unable to move themselves. The cost of energy will also continue to increase significantly. "Being climate smart is being resource smart," says Abdinor.

It is likely that businesses that over-shoot their allocated carbon budgets will pay punitive levels of carbon tax.

Abdinor adds that non-compliance may result in a loss of business. "If you are a business that supplies to, say, a big business that is taking climate change and its emissions targets seriously, you are going to be audited," he says. It will be similar to the current broad-based black economic empowerment (B-BBEE) requirements.

Companies must also be aware that their success is increasingly based on the social licence to trade. Many investors and consumers are now demanding that business take the climate issue seriously. Abdinor warns against greenwashing. He says, "We are starting see legal pressure come from that. In the United States, a lot of fossil fuel companies are being taken to court for greenwashing."

Brandon Abdinor

Zero-global participation

Yet, it is international laws that potentially pose the greatest risk to South African business. International communities, the European Union (EU) in particular, are becoming very strict around combating climate change. As such, a number of their laws and regulations will directly impact South African businesses.

The pledge for net-zero by 2050 is putting pressure on global businesses and financiers to withdraw funding for new fossil fuel developments. Field highlights the work of the G20's Task Force for Climate Financial Disclosures, which recommends that all businesses – but particularly the financial sector and sectors acutely vulnerable to climate change, such as construction and mining – should disclose their climate change risk in their annual filings. These include the costs of physical and transition risks, such as complying with climate-related legislation.

But perhaps one of the most impactful laws, says Abdinor, is the Carbon Border Adjustment Mechanism, which will see EU countries heavily tax imported goods with a high carbon footprint. That includes products made by power generated from fossil fuels and energy-intensive manufacturing processes. This means that South African exports could become increasing undesirable with some of our largest EU trading partners.

Benefits of onerous international legislation

While many stakeholders question why South Africa is committing to global climate change agreements, arguing its economic size and contribution to climate change are insignificant, Gilder stresses that South Africa gets great benefit from participating in the international climate change legal regime. He says, "benefits around technology transfer and financing [...] are issues intimately connected with the Just Energy Transition. Those deals are being unlocked by our participation in the multilateral arena, under the auspices of the Framework Convention on Climate Change and the Paris Agreement. If we were not in that club, we would not be in a position to benefit in that way."

Adapt or die

Field sums up the issue for business by saying, "I think there are going to be a lot of maladaptive responses in business behaviour, but the successful companies in the future will be those that are able to navigate the risks associated with climate change." GIBS

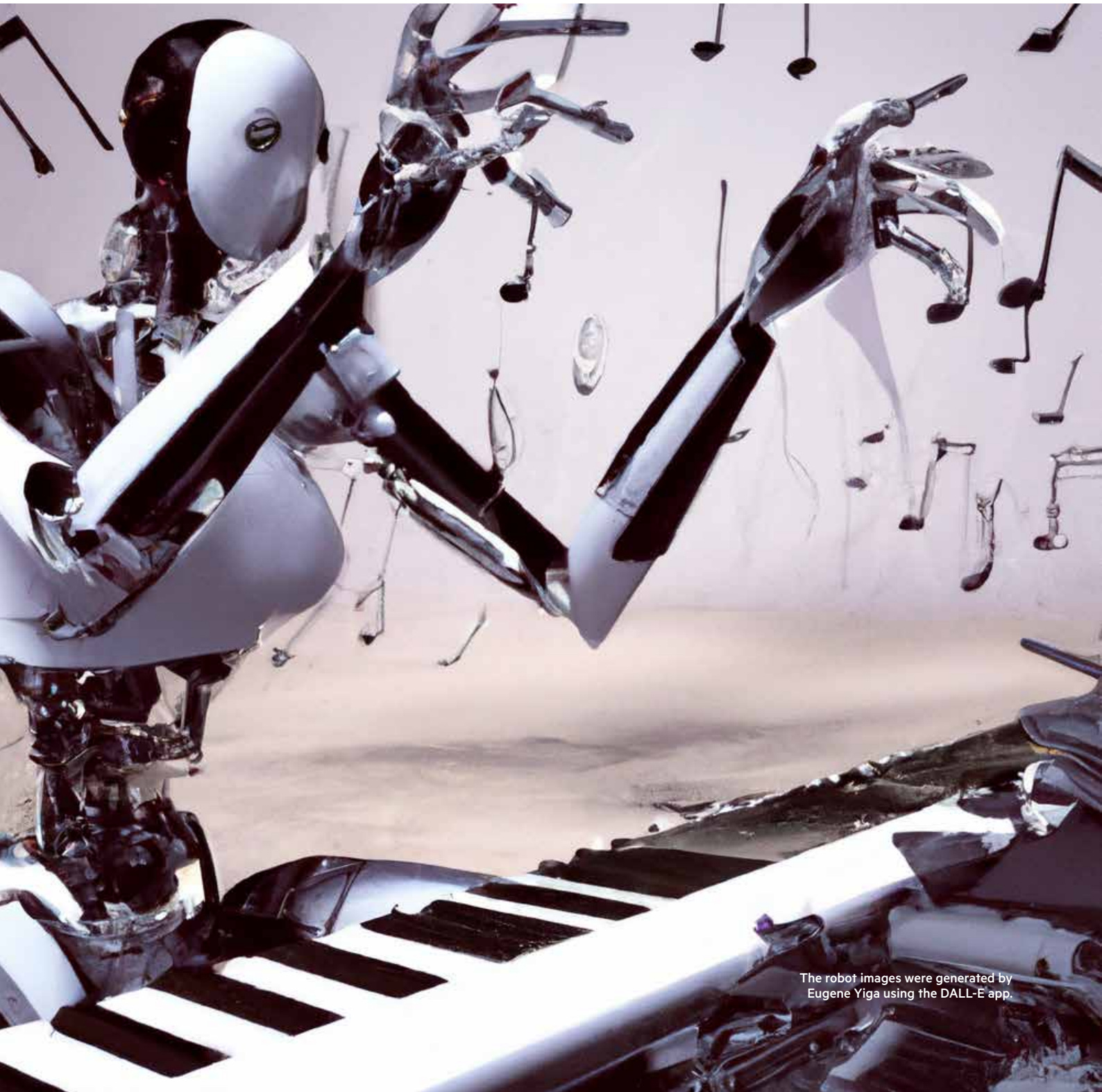
KEY TAKEAWAYS

- Climate change is an issue that South African businesses can no longer ignore.
- South Africa is a signatory to the Paris Agreement, which is a legally binding treaty to address the global climate change crisis.
- The country has various laws that have been designed to bring local companies in line with global emission standards.
- South African businesses need to stop focusing on legal compliance, and be aware of the business risks associated with climate change.
- Businesses need to engage more proactively with the climate science to understand the urgency of the issue.

BY EUGENE YIGA

Cracking the Creativity Code

Advances in artificial intelligence mean that computers are learning to paint, write, and think. So what does this means for artists and the world at large?



The robot images were generated by Eugene Yiga using the DALL-E app.

For a long time, we've been talking about robots taking over our jobs. But much of the conversation so far has focused on manual or repetitive tasks, from stocking shelves in a warehouse to driving a truck across the country to detecting tumours in an X-ray. The uniquely human creative work – writing, painting, composing – was safe from automation, at least until now.

"The visual world is where machine learning has been hugely successful [at] being able to produce extraordinary code that can recognise what's in an image," says Marcus du Sautoy, a British mathematician and author of several popular books, including *The Creativity Code: Art and Innovation in the Age of AI*. "Traditionally, in artificial intelligence, computer vision was the real challenge because a piece of code would look at a picture pixel by pixel and wouldn't understand what it was seeing. It couldn't understand what the image was about. But machine learning, by showing it pictures of cats or pictures of dogs, starts to distinguish between the two."

New algorithms work similarly to an artist's brain

If a piece of code can recognise images, how good is it at creating its own?

Very good, according to the output of tools such as Midjourney, Stable Diffusion, and DALL·E. These make use of what are called generative adversarial networks, which involve two algorithms working in competition against each other: a generator (that learns about art from the past and tries to create something new based on this) and a discriminator (that 'tells' the generator whether it's gone too far and created a mess or hasn't gone far enough and has created something we've already seen). For Du Sautoy, this is a lot like what goes on in any artist's mind.

"The poet Paul Valery once said that it takes two to invent anything: one makes up combinations and the other one chooses," he says. "And I think what's nice about this new algorithm is that it's sort of combining those two elements that human creativity exploits."

Laughing at a joke scripted by a machine shouldn't invalidate our mirth.

People have mixed feelings about AI art

And yet, when people engage with artificial intelligence (AI) artwork that they don't realise was generated by an algorithm, many end up feeling cheated, even though they might have a greater emotional response compared to paintings created by real people. For Du Sautoy, this is an odd response. Much like laughing at a joke scripted by a machine shouldn't invalidate our mirth, we shouldn't discount our how we feel at the sight of AI art.

"Every artist starts with the art of the past," he says. "Picasso, before he broke the mould, learned how to paint in the style of the great masters. AI is the same. [Moreover], our art is an expression of our emotional world. So if [AI has] learned on our emotional world, why shouldn't the paintings it starts to produce cause us to have an emotional reaction?"

Text generation algorithms have come a long way

Of course, even though Du Sautoy is starting to see a new style emerging in AI art, not all of the results are successful. It's been the same with text generation, which began in earnest with the Manchester University Computer that Alan Turing made after he left Bletchley Park after World War II. He, like Ada Lovelace, was beginning to think about the idea of machines doing more than just cracking codes.

"The team were rather surprised when the machine started writing love letters," Du Sautoy says. "After a while they realised that somebody had written a bit of code and was using a random number generator that Turing had made to fill in this template with random words of love. But now things have gotten more exciting

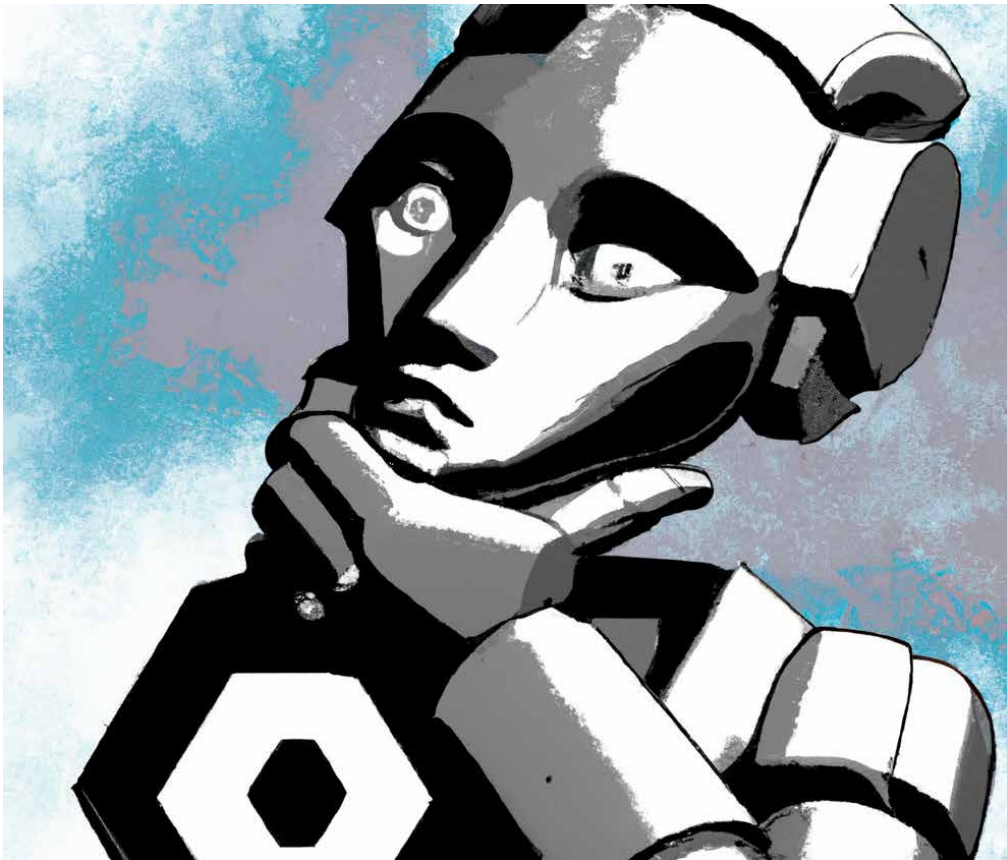


IMAGE Eugene Yiga

AI is doing well in shortform and creating convincing poetry.

than just the simple templates with GPT-3 [Generative Pre-trained Transformer 3, an autoregressive language model]."

Text generation works better for shortform writing

Right now AI seems to be good at creating short paragraphs or standard journalism stories such as market updates or sports news. Indeed, Du Sautoy was so convinced by the output of text generation tools that he even got AI to write 350 words of his book and offered his readers a challenge: Could anyone find it?

"Up to this date, only one person has spotted the piece that was written by AI, which I think is surprising because it's so badly written – I asked my editor not to correct anything that was in that passage," he says. "So I think AI is doing well in shortform and creating convincing poetry. But with longer form, it's having more of a challenge. It's not good at telling a story with a larger narrative."

Longform text generation doesn't stick to a plot

By example, Du Sautoy cites the work of Botnik Studios, a group of coders and artists who are also big Harry Potter fans. They thought it such a shame that JK Rowling had written only seven volumes of the core series and decided to give an AI all the books so that it could write a new story. It came up with an interesting title – "*Harry Potter and the Portrait of What Looked Like a Large Pile of Ash*" – and started out well enough. But then it (quite literally) started to lose the plot.

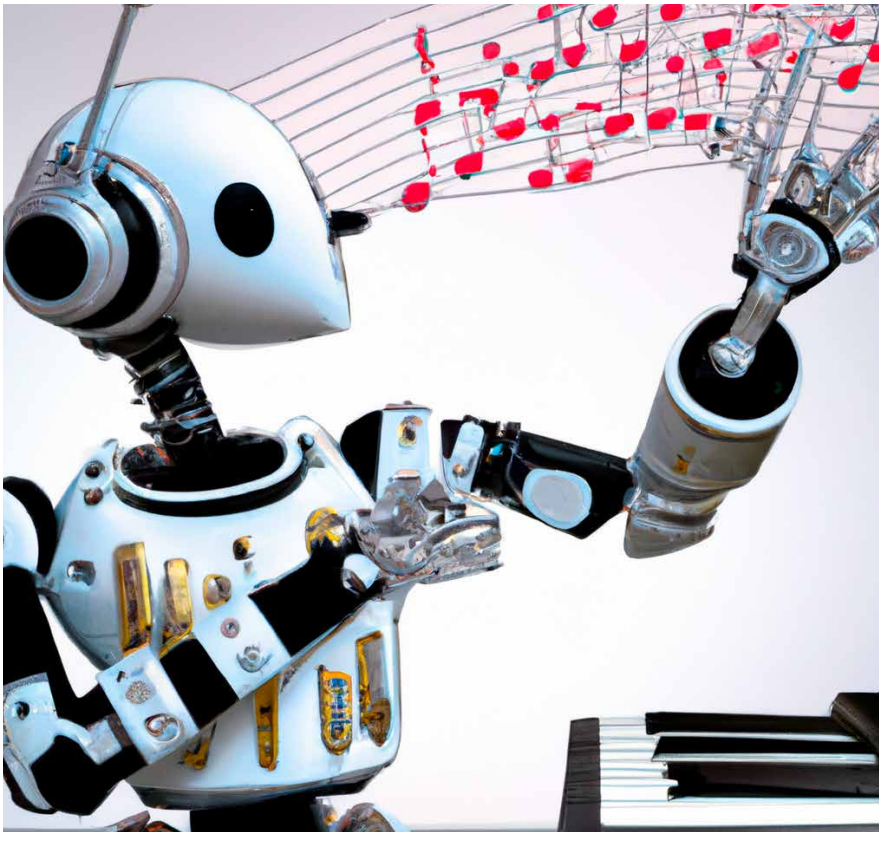


IMAGE Eugene Yiga

A robot composing a symphony in an artistic style

"AI is having a challenge so I think JK Rowling is probably safe at the moment," Du Sautoy laughs. "Like with the AI jazz improviser [see sidebar], it's interesting to listen to for about five minutes. But after five minutes, it's boring because it doesn't know where it's going. It just doesn't have anything it wants to say."

AI consciousness will be different from our own

Of course, these limitations haven't stopped people from proclaiming more progress than is perhaps warranted. Indeed, Google fired one of its employees for saying that a text generation algorithm had become sentient. But how exactly will we know when AI gets to this point?

"AI is an interesting new tool for humans to help us develop our creativity," Du Sautoy says. "And I think the moment we'll know that AI is conscious is because of its creative output. It will start to need to tell us that there is something going on inside – that this thing is not just code [but] that there is an inner emotional world... This brings to mind the quote from language philosopher Ludwig Wittgenstein, who said that if a lion could speak, we would not be able to understand him."

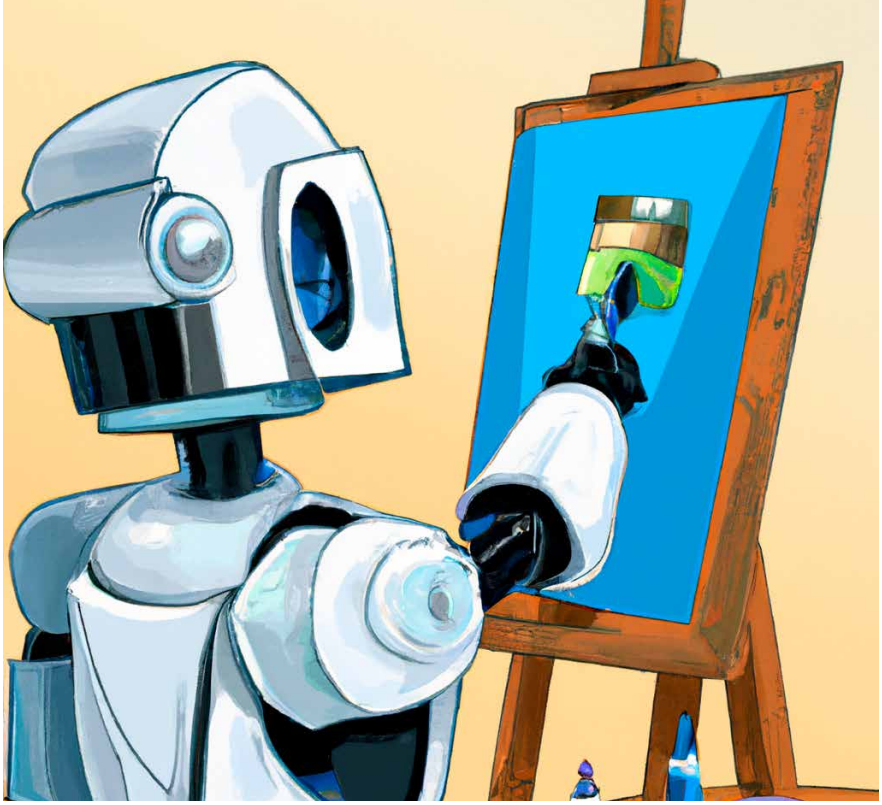
Creativity and consciousness are connected

Indeed, Du Sautoy believes that the challenge for knowing whether a piece of code is conscious or not is greater because its world will be so different from our own. Also, because the code is becoming too complex to examine line by line, we need tools to examine it and make sure it isn't engaging in bad learning (at best) or perpetuating biases (at worst). In doing so, it helps to remember what creativity is in the first place.

"The better definition that I use for creativity by the end of the book is not [research professor] Margaret Boden's idea that creativity is the ability to come up with ideas or artefacts that are new, surprising, and valuable but that of [psychologist] Carl Rogers, which is that creativity is the best tool we humans have come up with to examine our own inner conscious world and the conscious

It helps to remember what creativity is in the first place.

world of the other," he says. "I think our creativity emerged at the same time as our consciousness; we needed something to explore how we were feeling... But now we're creating this new inner world – the inner world of the code – and we're going to need tools to examine how it's thinking. And asking it to be creative is an interesting way to explore how it's thinking [and] has the potential for us to get some inkling of what is about to happen with this AI revolution."



A robot painting a self-portrait

The history of creativity

We're not the first generation to think about the creativity of machines. In fact, back in the 1800s, Ada Lovelace was one of the first to contemplate the idea that a machine might do something that we might regard as artistic.

"Charles Babbage had this extraordinary engine that he wanted to make, which was the first hints of a computer," Du Sautoy explains. "As a young woman, Lovelace went to see this 'analytic engine', which Babbage thought would just be good at speeding up calculations. But when she saw this machine, she also saw the potential for it to do things far more interesting than just math."

In her notes, she wrote that this machine "might compose elaborate and scientific pieces of music of any degree of complexity or extent". Du Sautoy finds it interesting that she chose music because, like mathematics, it has a lot of connections. Moreover, "they're both worlds of patterns".

"I would say math is the science of patterns while music is the art of patterns," he says. "So [she thought that] if a machine could do math, maybe it could make music. But she also had a word of caution: she didn't really regard the machine as the one being creative. It was still a human who told the machine what to do."

"The analytical engine has no pretensions whatever to originate anything. It can do whatever we know how to order it to perform. It can follow analysis; but it has no power of anticipating any analytical relations or truths. Its province is to assist us in making available what we are already acquainted with," Lovelace said.

In the past, there was certainly the feeling that if a machine made music it was a human whose creativity got the machine to do so. But Du Sautoy believes that this has now changed, so much so that machine learning "changes and mutates from the original code that the human wrote and has the potential to produce something that we didn't expect to be there".

"We've already heard about the Turing test (can a computer convince you that it's human in an interaction), but now there's a new test called the Lovelace test (can the artificial intelligence take us by surprise [such that] the programmer who originally wrote the code cannot explain how the algorithm produced its outputs)," he explains. "So in a way the code should know what it's doing. It shouldn't just be some randomness from the outside."

Jazz it up

As a passionate musician who plays the trumpet and the cello, Du Sautoy is fascinated by the output of artificial intelligence when it comes to composing music.

"Jazz pianist Bernard Lubat trained a piece of AI on his style of improvisation," he says. "And then they played a concert together – kind of a call and response – in which Bernard would play a piece, the AI would listen to the patterns and then continue it, and then Bernard would respond to the AI. They would have this dialogue."

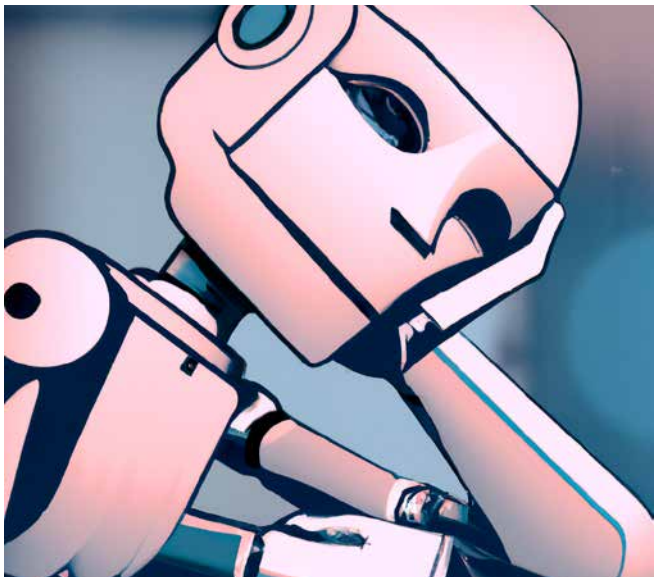
When the two played to an audience from behind a screen, the audience could never tell who was the human was and who was the AI. But it was Bernard's response that Du Sautoy found most insightful. He said that the system showed him ideas he could have developed but that would have taken him many years to do so. He said that it was "years ahead of me" but that everything it played was "unquestionably me".

"This is exciting," Du Sautoy says. "Bernard got stuck in a particular way of playing his jazz. The AI listened to it and asked: but why don't you do this with your sound world? So it wasn't showing him a completely new style. It was his style but it was showing him new things he could do with it."

This speaks to something that applies to all artists and people who do creative work. So many of them (and us) often get stuck in the past, behaving "more like machines because we just repeat the algorithms that have worked".

"As [do] many other mathematicians, I repeat ways of thinking that have been successful," Du Sautoy admits. "And in this case, the AI helped to kick Bernard out of being a machine and to think again about his own creativity and what he can do with his music. [In other words] the AI is helping us to be more human again."

A robot writing a novel



A robot deep in thought

IMAGE Eugene Yiga

KEY TAKEAWAYS:

Du Sautoy shares three quotes in summary:

1. "Art does not reproduce the visible. Rather, it makes visible." – Paul Klee
2. "Art at its most significant is a distant early warning system that can always be relied on to tell the old culture what is beginning to happen to it." – Marshall McLuhan
3. "The greatest benefit we owe to the artist, whether painter, poet, or novelist, is the extension of our sympathies... Art is the nearest thing to life; it is a mode of amplifying experience and extending our contact with our fellow men beyond the bounds of our personal lot." – George Eliot GIBS

BY DENISE MHLANGA

Developing Green Buildings

From building design, construction, operation to life cycle, a sustainable built environment helps to address climate change effects.

Cintocare Hospital in Pretoria is the first Growthpoint green rated healthcare building.

The global real estate industry accounts for about 40% of annual greenhouse gas emissions, according to the United Nations (UN), which contribute to climate change – the shifts in temperatures and weather patterns over the years.

Green buildings or environmentally friendly buildings can help address and reduce the effects of climate change, improve the health and wellbeing of occupants as well as help owners lower building operational costs.

"Climate change will affect everyone and action is needed. Though the built environment is part of the problem, it can also be a huge part of the solution," says Georgina Smit, head of technical at the Green Building Council of South Africa (GBCSA).

The GBCSA is an industry body that collaborates with professionals to champion climate action on new and existing buildings. Its role is to drive market transformation within the South African built environment.

"At GBCSA, we strongly believe in the practical solutions that can be measured and that demonstrate a significant impact that green and net zero buildings offer." Net zero refers to buildings with close to zero greenhouse gas emissions.


Georgina Smit

Though the built environment is part of the problem, it can also be a huge part of the solution.

Industry initiatives

Globally, the World Green Building Council (WorldGBC) has acknowledged that the built environment is a problem, but also presents an opportunity to correct the situation. To this end, the organisation, together with regional councils, has committed to not only build sustainably but has set itself ambitious targets to reduce its carbon emissions.

Worldwide, the built environment aims to achieve net-zero operational carbon emissions between 2030 and 2050. These buildings are optimally (energy) efficient, they generate their own energy onsite using clean renewable resources (like solar power), in amounts equal or greater than the total energy consumption on site.


Sandton Gate is a mixed-used green star rated precinct.

The South African built environment is doing its part to reduce carbon emissions, as seen in the number of green-certified buildings in line with these global ambitions. The GBCSA sets standard benchmarks around energy performance in buildings that support climate change mitigation for all industry stakeholders to measure themselves against.

Smit says the GBCSA was a key partner in bringing the net zero carbon conversation to South Africa, and the country has more than 20 buildings that have achieved net zero carbon, including big buildings. "These buildings provide examples of leadership, innovation and practical real-life solutions at delivering buildings that are at the forefront of tackling climate change."

In partnership with the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and the eThekwini Energy Office, with input from the C40 South Africa Buildings Programme, Sustainable Energy Africa (SEA), the GBCSA has also developed a guide to developing net zero carbon buildings in South Africa – a tool providing a user-friendly overview on net zero carbon buildings.


Emira Property Fund's Bryanston building, Knightsbridge Office Park Block A achieved Net Zero – Carbon Level 2: Occupant Emissions (modelled) certification during the 2022 financial year.

A rooftop solar PV installation at Emira's Knightsbridge Office Park in Bryanston.

Located in Pretoria, Wonderpark Shopping Centre is Emira's largest asset with the biggest solar photovoltaics (PV) system of 2.8 megawatt peak capacity (MWp).

Zero carbon emissions target

Emira Property Fund is a JSE-listed real estate investment trust, one of 80 companies globally and the only one in Africa, which was selected to work with the SBTi (Science Based Targets Initiative) in 2017 to develop the global net-zero standard to align with the Paris Agreement's 1.5°C carbon reduction target. The target aims to reduce Scope 1 and 2 (emissions owned or controlled by a company) greenhouse gas emissions by 13% by 2023, using 2015 as a base year, says Ulana van Biljon, Emira's chief operating officer at Emira Property Fund.

"To date, Emira has achieved 98.1% of this target, and by 2023, the new target will see Emira reduce its emissions by 46% compared to the 2019 baseline," says Van Biljon.

Exxaro head office in Centurion is a Growthpoint green rated building.

For the 2022 financial year, Emira achieved a 3.8% reduction in carbon emissions across its buildings and 2% reduction in Scope 1 and 2 emissions. The company recorded a 2% reduction in grid electricity usage while seeing a 16% increase in energy production.

Its green building in Bryanston, Johannesburg, the Knightsbridge Office Park Block A, achieved Net Zero – Carbon Level 2: Occupant Emissions (modelled) certification. An additional 50 000 litre rainwater harvesting system was installed at its Ben Fleur Shopping Centre in Mpumalanga.

Reducing operational carbon emissions is a key component of all GBCSA green building certification tools. To date, there are more than 900 certifications in South Africa, mainly taken up by the commercial (offices) property sector. Increasingly, the residential property sector and industrial property players are adopting green certifications.

Ulana van Biljon

Green building initiatives focused on energy efficiency are the most cost-effective climate abatement solutions.

"International studies have shown that green building initiatives focused on energy efficiency are the most cost-effective climate abatement solutions, in comparison to other sectoral options," says Smit.

Growthpoint Properties, the largest and most liquid real estate investment trust on the JSE and a component of its Top 40 index, has 71 green star-rated buildings out of the 408 buildings it owns. The company aims to have all the buildings it controls to operate at net zero carbon by 2030 and all buildings by 2050.

Grahame Cruickshanks, Growthpoint Properties' head of sustainability and utilities, says they have invested in energy and water efficiency and zero organic waste to landfill, among other initiatives.

He says the company is focused on making its assets less dependent on non-renewable energy sources while actively promoting water security. "We provide space to thrive in environmentally sustainable buildings, while improving the social and material wellbeing of individuals and communities."

Since 2015, South Africa's only specialist self-storage real estate investment trust, Stor-Age, has invested more than R170 million

installing solar panels in its buildings in South Africa and the United Kingdom, with a further R8 million investment planned over the medium term.

In South Africa, the company has installed more than 2 400 solar photovoltaic (PV) systems at 26 of its buildings and four in the UK. These PV systems have to date generated 2.2-million kilowatt-hours (kWh) in solar power, capable of powering 2 400 homes for a month. Its total solar PV system is about 840kWh.

"We believe that the most important space is the environment that surrounds our properties and the broader communities in which we operate," says Chris Oosthuizen, chief marketing officer of Stor-Age.

He says Stor-Age will continue investing in energy efficiency, renewable energy generation, reducing CO_2 emissions, rainwater harvesting, storm water management, waste and water management, fuel consumption and conservation.

In newly acquired buildings and new developments, Stor-Age installs solar panels and energy efficient LED lighting as well as implementing waste management initiatives.

LED light fittings save up to 60% of consumption compared to standard fittings. In addition, solar panelled hot water cylinders have been installed to heat water within its properties. Monthly reviews are conducted to assess energy consumption across the portfolio.

Renewable energy use has resulted in about a 13% reduction in the total carbon emissions within Stor-Age's control and results of its

Grahame Cruickshanks

The effects of climate change pose a significant risk to operational costs.

activities from other sources but not owned or controlled by the company. More than 1 677 tons of carbon dioxide emissions were avoided through the consumption of on-site solar PV renewable electricity, says Oosthuizen.

"The main energy consumption of our properties is grid electricity for lighting, elevators, general power, heating, cooling and ventilation and these cause indirect off-site power station carbon emissions," says Oosthuizen.

Stor-Age real estate investment trust has invested more than R170m installing solar panels in its buildings in SA and the UK.

It starts with sustainable design

Most of the carbon dioxide emissions from the built environment come from the production of concrete, with glass and steel the second- and third-most polluting materials due to high-energy consumption and material off-gassing during fabrication. The balance of the industrial emissions are from shipping and transportation.

"As an industry, and given the urgency to tackle climate change, it is important to do away with unsustainable building practices by using more renewable materials and considering energy consumption during the life cycle of a building," said Hernes Kruger, director at TNK (ThiNK) Green.

TNK, a multidisciplinary design and lifestyle company, pivoted in 2020 after seeing a gap in the market to move away from standard construction practices to sustainable ways. As an example, the company has moved towards low-embedded energy construction and is actively pursuing education opportunities to become a LEED-certified design and construction firm.

Kruger says TNK advises towards more sustainable construction materials, such as using less concrete, glass and steel, and by making use of cross-laminated timber (CLT), clay and lime

144 Oxford in Rosebank is a 5-star green rated building.

plaster, and considering alternatives to standard brick-and-mortar construction wherever possible.

"Construction materials should be carefully considered and in recent years there has been a push towards more sustainable materials such as wood (CLT), stone, hemp (hempcrete), or soil (rammed earth), but most of these have not seen widespread adoption in the South African market," says Kruger.

Oosthuizen says Stor-Age targets building designs which allow for maximum use of daylight to reduce demand for artificial lighting.


Hernes Kruger

They also use building materials that assist with insulation, source major building materials from responsible local suppliers where possible, minimise construction waste and implement a site waste management plan, harvest rainwater for internal use, implement effective surface water design and management systems, and maintain or enhance each site's ecological value through retention of vegetation and new plants.

Cost reduction

Van Biljon says the effects of climate change pose a significant risk to operational costs, hence Emira continues to invest in energy efficient

Building green enables the efficient use of resources while addressing climate change.

and renewable energy across its portfolio. In 2015, Emira began with its first PV farm installation, and has since increased its installed capacity to nine properties equating to nearly 24 000 solar panels and more than 9 000 kilowatt peak capacity.

Between 2015 and 2022, Emira has implemented various sustainability interventions on 554 projects at a cost of R222 million. As a result, 24 088tCOe (tons of carbon dioxide equivalent) were offset, 23 808 489kWh of electricity and 358 795 kilolitres of water have been saved.

Cruickshanks says resource are becoming scarcer due to climate change, leading to a rise in administered costs. It is becoming rapidly more expensive to purchase electricity generated primarily from fossil fuels, resulting in increasing occupancy costs for tenants – and this puts a strain on their ability to meet their lease obligations, he explains.

"With this in mind, our biggest opportunity is energy efficiency projects like lighting retrofits with shared savings agreements such as a green addendum to leases," says Cruickshanks.

Going green

Smit says building green enables the efficient use of resources while addressing climate change – and this results in healthier and more productive environments in which people can live, work and play. To achieve this, elements of building design, materials used and technology to reduce energy and resource consumption are incorporated.

"Green buildings produce less waste and carbon emissions, they lower maintenance costs, electricity and water costs, and have lower vacancies compared to traditional buildings."

The GBCSA has created rating tools that allow building owners to measure buildings' green levels compared to a standard traditional non-green building for new and existing buildings.

The rating tools can be used for any type of building and most projects, from precincts to homes to existing buildings and interior fit-outs, among others. The green star certification creates a universal platform for credible and objective measurement of green buildings. Each tool recognises and rewards environmental leadership and is a recognised symbol of sustainability achievement, Smit explains.

Most new buildings are designed to target a green star rating. Depending on the star rating, the GBCSA has specifications on what each rating looks at as a scorecard. The same applies for existing buildings, where, for example, building owners replace lighting, install water and electricity saving initiatives such as smart metres.

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GBCSA achievements to date

The GBCSA, a non-profit membership-based organisation, was established in 2007 by commercial property sector leaders. It is one of about 70 members of the WorldGBC.

Since launching, the GBCSA has achieved 905 green certifications in Africa, across the Green Star, Net Zero, Energy Water Performance and Excellence in Design for Greater Efficiencies categories.

The effect of these certifications has resulted in significant energy and water saving as well as carbon reduction. Some of these include: 91 500 households' worth of annual energy (1 320 million kilowatt-hour/annum), and 1 220 million litres of potable drinking water will be saved annually, which equates to 1 672 800 people's daily drinking water needs annually.

The 1 590 million kilograms of CO_2 per annum that will be saved equates to 395 400 cars off the roads every year in terms of kg/CO equivalent.

To date, 2 265 professionals have been accredited through GBCSA's training and accreditation programmes, with 325 students going through the candidate programme.

The CEO of GBCSA, Lisa Reynolds, says that in 2022, 165 buildings were certified.

"It took over five years to achieve the first 50 certifications, but as the environmental and financial benefits of green building became more apparent, we saw a greater buy-in across the board and the industry as a whole has shifted."

Reynolds says it is recommended that net zero-ready building standards covering the life cycle emissions of buildings are implemented by 2030 at the latest.

To this end, the GBCSA along with other green building councils in the Africa region developed the Africa Manifesto for Sustainable Cities and the Built Environment in 2022. The document sets out policies and commitments that African business leaders and policy-makers must implement to deliver a net-zero carbon, healthy, equitable, resilient, environmentally sustainable and economically inclusive built environment for everyone, everywhere.

"Green buildings are one of the quickest, most cost effective ways to reduce carbon dioxide emissions and improve local development, air quality and health," adds Reynolds. GIBS

Lisa Reynolds

It took over five years to achieve the first 50 certifications, but as the environmental and financial benefits of green building became more apparent, we saw a greater buy-in across the board and the industry as a whole has shifted.

BY GAYE CROSSLEY

GIBS – A World-Class Research Institution

GIBS consistently ranks as a top African and global business school. One of the markers of a leading academic institution is the quantity and quality of the research its academics produce.

In every *Acumen* edition, we highlight some of the research that makes GIBS a leading African business school. As an institution, GIBS is focused on finding answers to African business challenges and, therefore, is contributing meaningfully to the body of research that African academics and business leaders can consult when navigating continent-specific challenges. In this edition we highlight: a book chapter, six academic articles and one teaching case study.

BOOK CHAPTER

The Lingering Effect of Slavery and Colonial History on International Business

Albert Wöcke & Helena Barnard

In their chapter for the book, *The New Frontiers of International Business*, Professors Albert Wöcke and Helena Barnard examine the role Africa's history of slavery and colonialism has played on the Africa Rising narrative. In the chapter, they suggest that these two aspects of African history are important but understudied explanations for how international businesses run their operations on the continent. They also suggest ongoing research into the subject.

Wöcke and Barnard offer four opportunities for further study:

- The interplay of historical, colonial and emerging institutions and the resulting complex institutional environment.
- Indigenisation policies and the introduction of new policies, required as Africa recovers from the damage caused by colonialism.
- The two key relationships – with poor communities and the political and economic elite – that multinational enterprises have with Africans.
- The macro and micro consequences of Africa's remittances and its relationship with international aid.

The authors believe this research is important for Africa, and other parts of the world that were subject to colonialism. They also argue that more in-depth research will help promote understanding of the consequences of China's modern colonisation of Africa.

Reference: Wöcke, A., & Barnard, H. (2022). The lingering effect of slavery and colonial history on international business: The case of Sub-Saharan Africa. In *The New Frontiers of International Business* (pp. 73-94). Springer.

Book chapter link: https://link.springer.com/chapter/10.1007/978-3-031-06003-8_4

ACADEMIC ARTICLES

1. International Network Formation, Home Market Institutional Support and Post-entry Performance of International New Ventures

Francis Donbesuur, Nadia Zahoor & Nathaniel Boso

This article looks at businesses entering foreign markets, especially into those operating in weak institutional environments. The research looks at both causation and effectuation decision-making approaches (the causation approach adopts strategies in order to achieve a predetermined end goal and the effectuation approach adopts strategies with no defined end goal in place). Where previous scholars have proposed that effectuation and causation strategies are opposite decision-making approaches, this research finds that both effectuation and causation decision-making processes, in international network formation, can improve post-entry performance.

There are three key practical findings in the paper:

- When determining a strategy for internationalisation, decision-makers must choose one strategy or the other, as using a combination of both is too costly for new ventures to accommodate.
- However, owner-managers from markets with weak institutional support can benefit from a complementary approach, which takes the flexibility of effectual logic and combines it with the more cautious causal approach to maximise post-entry performance.
- When considering an internationalisation strategy, entrepreneurs from home markets with weak institutional support need international support services from policy-makers for international network formation.

Reference: Donbesuur, F., Zahoor, N., & Boso, N. (2022). International network formation, home market institutional support and post-entry performance of international new ventures. *International Business Review*, *31*(3), 101968.

Article link: https://doi.org/10.1016/j.ibusrev.2021.101968

2. Trust Building in Mobile Money and its Outcomes

Christian Osakwe, Terence Okeke & Michael Kwarteng

Mobile money – the use of mobile phones for performing a range of financial transactions, including merchant/bill payments, savings, and peer-to-peer transfers – is considered key for expanding access to financial services in developing nations. However, the adoption rate for mobile money remains low, predominantly due to trust issues.

In their research, the authors found a number of practical applications around building trust among users:

- Regulatory guidelines and technology safeguards contribute to trust. Clear guidelines and explanations around security safeguards must therefore be provided.
- Mobile money operators (MMOs) must invest in building good reputations, found to positively build trust with consumers. Excellent customer service, including complaint handling, fairness, and service are essential.
- Increased consumer awareness as well as the benefits of the technology must be conveyed. This requires effective marketing across all channels.
- MMOs should also ensure their services are reliable by keeping their promises and acting to keep customers informed in the case of systems failures.
- Women are more likely to use the technology than men. As such, MMOs should target women.

Reference: Osakwe, C. N., Okeke, T. C., & Kwarteng, M. A. (2021). Trust building in mobile money and its outcomes. *European Business Review*, *34*(2), 244-262.

Article link: https://doi.org/10.1108/EBR-09-2020-0221

3. The Brand Personality of a Football Manager: The Case of Arsène Wenger

Adele Berndt

As a business, sport contributes an estimated $620 billion to the global economy. The English Premier League (EPL) was worth in excess of $5 billion in 2018-2019. Successful businesses are successful brands, and club managers like Arsène Wenger form a critical part of a club's branding strategy. This paper explores the brand personality of an EPL football manager, using Arsène Wenger as a case study.

It studies the importance of the person when carrying out a specific role and suggests three focus areas for managers' branding:

- Managers must be aware of their brand persona, which must be managed by a range of choices contributing to a positive brand perception. Managers can be trained and supported when building a successful brand.
- A sports manager's persona impacts the club's branding strategy. A good brand can be used to strengthen the club's identity.
- Coherence between the brand persona of the manger and that of the club is key. Clubs should, ideally, employ managers whose personae are consistent with the club's brand identity to avoid brand conflict, which will be disadvantageous to both parties.

Reference: Berndt, A. (2021). The brand persona of a football manager: The case of Arsène Wenger. *International Journal of Sports Marketing and Sponsorship*, *23*(1), 209-226.

Article link: https://doi.org/10.1108/IJSMS-01-2021-0018

4. Profit-Seeking Corporate Social Responsibility in Developing Countries

Helena Barnard & Katherina Glac Pattit

Corporate social responsibility (CSR) can help improve brand image, drive innovation, reduce business risk, and also indirectly, improve financial performance. In this paper, the authors explore theoretical and practical implications of stretching the concept of CSR towards being an intentionally planned profit-generating activity, essentially by using CSR as a form of research and development (R&D).

The insights gained from the research include:

- Managers often use CSR in ways not necessarily intended, like as a form of R&D. Although CSR and R&D have similarities, there are important differences.
- Socially orientated innovation is not done from within the firm, but rather through engagement with potential customers – beneficiary communities. However, given the vulnerability of the beneficiary communities, it is important to have safeguards in place to govern these relationships.
- While firms use CSR initiatives to benefit customers, the research shows that the costs, even of initiatives with a strong social orientation, are borne by both the firm and the often-vulnerable individual potential beneficiaries or customers.
- By removing experimentation and innovation from the CSR shadow, CSR initiatives as well as the effectiveness of social innovations will improve.

The paper raises questions about how to conceptualise CSR initiatives so that they are pro-social and responsible.

Reference: Barnard, H., & Pattit, K. G. (2022). Profit-seeking corporate social responsibility in developing countries: The risk of conflating CSR and R&D. *Journal of Comparative International Management*, *25*(1), 61-83.

Article link: https://doi.org/10.55482/jcim.2022.32901

5. Impact Investment: Multiple Stakeholders' Measurement of Financial and Social Benefits

Darren Harder & Caren Scheepers

This article explores impact investing and identifies solutions to overcome the gap between business and society. Impact investing is when investing seeks to have an impact socially, environmentally and financially, while still ensuring financial returns for the business or investor.

Key insights from the research include:

- Interviewees were unclear who the stakeholders are in impact investing, who the business is accountable to and at what stage stakeholder engagement should occur in the development and implementation of an impact-investing initiative.
- There is a fourth stakeholder that must be considered in the impact investing space. The first three – investor, investee and beneficiary – are widely covered in literature. However, the intermediary is a crucial roleplayer here.
- The research also outlines three key phases within the impact-investing cycle: due diligence, measurement and management, and assessment. It discusses steps to take in each phase, and who businesses should engage with and why.
- The research also highlights the importance of measuring social impact and of engaging with stakeholders through the project management cycle.
- Evidence is crucial and businesses need to build an impact measurement system to showcase social impact to society and investors. This will build competitive advantage and lead to further investment.

Reference: Harder, D., & Scheepers, C. B. (2022). Impact investment: Multiple stakeholders' measurement of financial and social benefits. *Development Southern Africa*, 1-22.

Article link: https://doi.org/10.1080/0376835X.2022.2054777

6. Effects of Customer Characteristics and Service Quality on Share of Wallet in Neighbourhood Shops Based on an Asymmetric Approach

Christian Osakwe

Many scholars believe that growing customers' share of wallet (SOW) – the amount of money customers spend regularly on a brand rather than on the competition – is a key priority for firms and brands, especially retailers. Marketing aimed at boosting SOW in existing customers is more cost-effective than investing in finding new customers. This paper aims to increase the understanding of SOW and is based on customer characteristics and the retail service quality model.

Key insights include:

- When looking at micro enterprises, low-income large households are good conditions in which to increase SOW. The paper highlights five unique customer profiles associated with increased SOW.
- Retailers need to consider service quality, which includes: personal interaction, reliability, policy and physical aspects of the shop. These need to be combined with customer characteristics, which include relationship duration, household size, gender and income level. These act in combination to increase or decrease customer SOW.
- This is the first study, to the author's knowledge, to provide evidence on the necessary conditions for increased SOW, especially in the neighbourhood shop context of a developing economy.

Reference: Osakwe, C. N. (2022). Effects of customer characteristics and service quality on share of wallet in neighbourhood shops based on an asymmetric approach. *European Business Review*, *34*(4), 521-540.

Article link: https://doi.org/10.1108/EBR-07-2020-0185

CASE STUDY

Sasol's Just Transition: Balancing Stakeholder Prespectives to Leave No One Behind

Marianne Matthee, Anthony Wilson-Prangley & Amy Moore

Sasol is a significant player in the South African economy. Founded in 1950, Sasol is South Africa's largest taxpayer, and according to the Positive Actions: Sasol Sustainable Development Report 2009, it contributed an estimated 4.7% to the country's gross domestic product. However, Sasol is a major emitter of greenhouse gases, due to its reliance on coal to produce fuels and chemicals.

This case study examines Sasol's just transition – and the resulting unemployment due to environmental protection policies – as the company looks to meet its climate change obligations without leaving any of its stakeholders behind. Sasol understands that adapting to align with the global climate change agenda is imperative, but is also aware of its critical role in local communities that face challenges including high unemployment, poverty and inequality.

Streamlining Sasol has necessitated a retrenchment drive. As the largest employer in Sasolburg and Secunda, it needs to balance its responsibility to local employees with the broader communities who benefit from the coal value chain for their livelihoods.

This award-winning case study delves into the complexities and the conversations needed to ensure Sasol navigates a just transition. (The case study won first place in the 2022 Fox International Case Writing Competition. It is currently under review to be published by Ivey.)

BY TAMARA OBERHOLSTER

Who's Winning SA's Grocery Wars?

One of my enduring childhood memories is accompanying my mother to the Boksburg Pick n Pay Hypermarket for monthly grocery shop outings. I'd sit in the trolley, watching her meticulously ticking items off her list and calculating the running total as she went. Afterwards, we'd pile the mountain of plastic bags into her little Renault. She could barely see through the rear-view mirror.

This could not be more different to the way I shop in 2022, usually via an app on my phone over coffee. I'll check which retailer has stock of particular products, assess the specials on offer, then put in my order (enough to cover just a few days) and expect it to be delivered to my door within the hour.

Yet barely three years ago, this scenario would have been unimaginable to most South Africans. The retail landscape has shifted drastically, and the grocery market is more competitive than ever before.

Trends in context

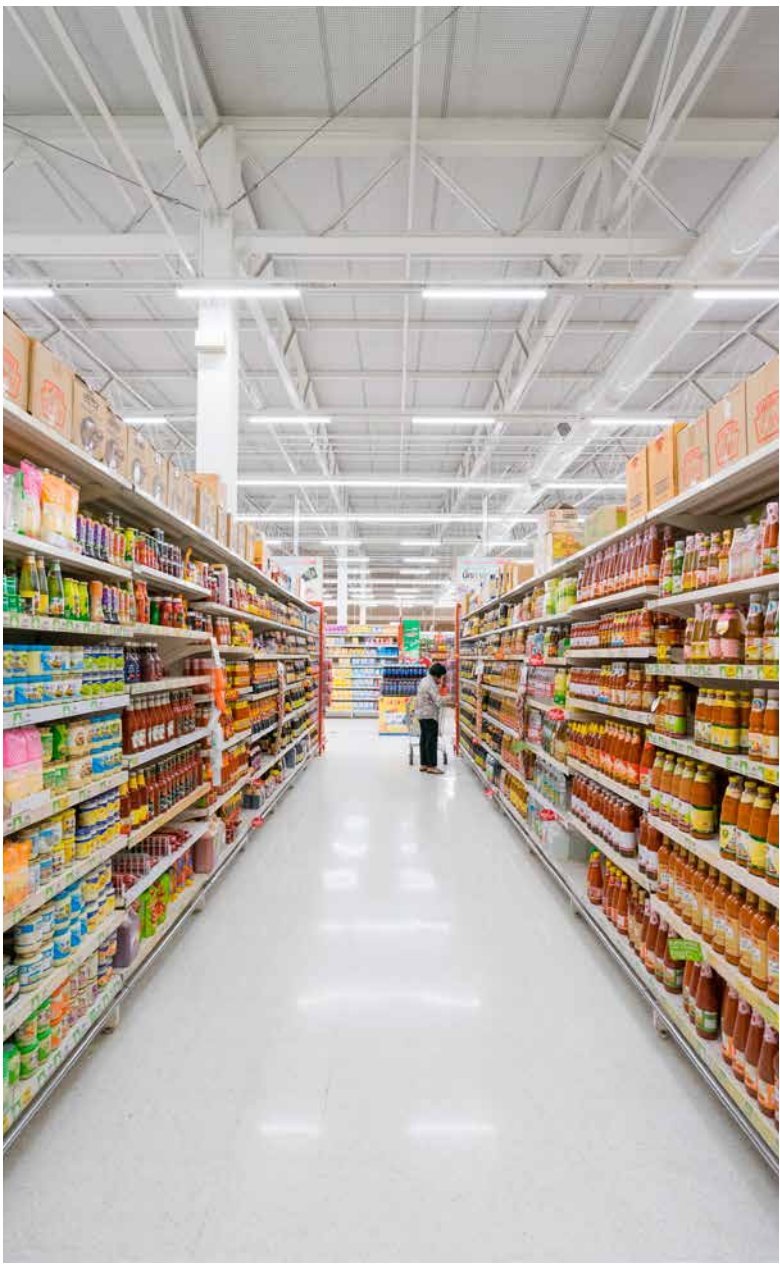
Who's got the best strategy, not just now, but to prepare for the changes that lie ahead?

I tried to ask retailers these questions. Shoprite declined to comment; Woolworths did not respond to several requests for interviews. After I tracked down a Pick n Pay PR contact, the company's chief business transformation officer, David North, proved most helpful.

North notes that South African customers are worried about rising prices and their ability to make ends meet. "Offering value is vital for any retailer," he says. "Give people value, and they will then engage with you on other things that matter to them – having a healthier diet, understanding the provenance of

David North

Give people value, and they will then engage with you on other things that matter to them.




Natasha Smith

food, and shopping more conveniently, whether that is online, or in smaller stores closer to where they work or live."

Natasha Smith, MD of Trade Intelligence, says it's important to understand where retail trends come from. This requires understanding the global and then local context, particularly the PESTLE factors (political, economic, sociological, technological, legal and environmental).

She identifies several 'macro' global trends affecting the retail landscape: the advent of the digital era (including the metaverse); the rise of activism movements, such as Black Lives Matter; the new hybrid way of living, which she terms "blended everything"; the platform economy (which encompasses online communities, a more shared economy and multi-feature platforms that allow us to connect and interact in new ways); and the embrace of "total wellness", which includes mental health as well as physical wellbeing.

The new hybrid way of living ... 'blended everything'.

There are also supply chain disruptions wrought by the pandemic, and the fact that more generations are economically active – even down to children shopping online. Finally, there's the increase in social commitment around climate change.

A shopper-led retail sector

Andrea du Plessis, senior retail analyst at Trade Intelligence, says there's been a shift in the retail industry over the past two decades from being manufacturer-led to brand-led and now to shopper-led. "Both manufacturers and retailers are responding to shopper needs," she says. "We've developed a model that defines those shopper needs."

These include value at the base, as a necessity, and then comes demand for convenience and a great shopping experience, as well as healthy living and conscious living.

Market response

Smith says that retailers respond strategically to trends from an internal and external perspective.

Shopper demands and expectations

Shoppers today are:

- Less predictable
- Better informed
- More astute
- More demanding

Source: Trade Intelligence | SA FMCG Market Size Estimate and Forecasts Copyright © 2021

Internally, they look at what they can do within their business to improve. There's a squeeze for margin and retailers can't always afford to pass costs to the consumer. They need to sweat their assets and look for efficiencies. They will focus on the sales mix and look to innovate.

Externally, retailers are responding in three ways:

- Focusing on the shopper. Asking, "What strategies and decisions do we need to make that speak directly to the shopper?"
- Exploring formats and business models: This is about creating shopper-centric models and formats. "We call this hyper-segmentation in the channels," says Smith.
- Conscious trading: This relates to commitment to environment and is important given shoppers' increased awareness of what's going on in the environment. "Shoppers will choose or deselect retailers based on how they behave within the community," says Smith. "They can't just be an entity to themselves anymore."

She says there are also two broad types of 'enablers' retailers need to consider. "One is collaborations (for example what we saw with Pick n Pay and Bottles, which has since been acquired and become PnP ASAP).

The second one is around technology and data. Consumers today know that retailers are collecting data on them, and they expect them to use it to personalise the shopper experience. They actually get irritated when they feel the retailer doesn't know them more personally."

Shoprite is the top performer in our analysis.

Several of these trends can be seen in Pick n Pay's four-year strategic plan, Ekuseni, released in 2022, including hyper-segmentation of channels and embracing the digital world and hybrid living models.

North says Ekuseni is deliberately targeted to the key trends in the market. "We will double the size of our Boxer business, which is the best limited-range discounter in the market," he says.
"We are reorganising our Pick n Pay stores to give customers greater confidence and clarity in the market. Pick n Pay will focus on serving more affluent customers, with an emphasis on quality, range, innovation and freshness. And a totally new brand, Pick n Pay QualiSave, will give customers exceptional value in the growing middle market. We are also accelerating our offer to meet growing areas of demand – including our online agreement with Takealot and Mr D, and expanding our brilliant clothing offer."

Strategy in action: What Pick n Pay is doing

North says that Pick n Pay is focused on delighting customers.

"Do that and customers will give you their loyalty rather than giving it to the competition," he says. "Price and value are the most important things that customers are seeking in a very tough economic climate.

"As well as transforming our customer offer, we are working very hard to make our own business more productive and efficient – for example modernising our head office functions, reducing waste across our business, and equipping our people to focus more on winning for customers. We have set a target to save R3 billion over three years, and have made it clear that the savings will be invested straight back into giving customers lower prices and better value."

He says the most important thing to understand about the local market is that it's still growing.

"The informal market in South Africa accounts for around 35-40% of the total market. Customers trade across both markets, and the key to growth is to meet their needs for safe and nutritious food, offered in excellent stores, with unbeatable prices. This is a huge opportunity in the market, not just to grow, but to serve customers better."

Who's winning?

According to a *Business Day* article by investment analyst Chris Gilmour, Shoprite has the winning strategy. He highlights the group's progress from upstart in the 1980s to the largest retailer in the Africa / Middle East region in 2022 (according to the 2022 Deloitte Global Powers of Retailing survey), becoming a R200 billion-turnover company and employing more than 140 000 people.

But while it's the biggest competitor, Shoprite also emerged as the best performer across the board in Trade Intelligence's 2022 annual comparative retail report, taking top place in several categories.

"Shoprite is the top performer in our analysis when it comes to delivering value to customers, shopper-driven innovation, convenience, new store concepts, and differentiation through hyper-segmentation," says Smith. "In private brand propositions, Checkers is the winner (Checkers is part of the Shoprite group). They are also on top in terms of shopper-tainment (the whole shopping experience), and e-commerce and omni channel, with Checkers Sixty60. Conscious trading is the only category where we've actually got a couple of other retailers popping up, and that's Spar and Woolworths."

Du Plessis says that the results seem to indicate that "the closer a retailer's strategy is wrapped around shopper needs, the higher their success in the industry provided they champion excellence in execution too."

Strategy + execution

While good strategy is critical to success in the market, execution is just as important, Smith says. "I think success is a combination of that execution, external factors that we can't influence (such as pandemics and the like) and what your competitors are doing. You might have a great strategy and execution, but if your competitors are ahead of the curve, and just stronger, bigger, and faster than you, you'll see results, there's a lag effect. And, comparatively speaking, you still may not land up on top."

Du Plessis adds that Shoprite's strengths from a strategic perspective are that it articulates its strategy very clearly, relooks it annually (unlike most competitors), and bases decisions on thorough market testing.

Andrea du Plessis

Pick n Pay deserves a mention for its new store segmentation strategy.

Its Checkers Xtra Savings loyalty card programme is an example of this. The group was almost the last to market with a loyalty programme, but understood its consumers very well when it did (and their desire for instant gratification) and has already grown the programme to 24.7 million people.

Du Plessis says Pick n Pay deserves a mention for its new store segmentation strategy. "It's quite controversial and I think it's an uncomfortable journey for them, but I also think it's the right thing for them to do."

Responsive and progressive

Smith believes retailers need to strike a balance between being responsive and being progressive. "The responsive part relates to how shoppers know how much information you have about them. They want and need to be heard. They expect hyper-personalisation, customised solutions just for them. Retailers can't go on any longer without being responsive," she says. "But I think there's a balance between that and being progressive. If retailers really want to win and they want to stand out, they need to move beyond product and solutions to purpose."

Purpose is about conscious living: being community-minded, addressing social wrongs, standing for something.

This fits with a greater focus on environmental, social and governance (ESG) matters. As PwC South Africa notes in its podcast *ESG in the retail industry*, the social part of ESG is critical, not only in terms of retail organisations taking care of their own employees, but also their consumers (such as upholding the Consumer Protection Act).

"Retailers also need to be early adopters and pioneers of technology and data," says Smith. "Use AI. Use this idea of the metaverse. Create experiences that consumers don't even know they want yet. I think the retailers that really invest in that kind of progressive innovation and embed that in their strategies will go a long way in terms of winning the grocery wars." GIBS

BY TAMARA OBERHOLSTER

Employees as Intrapreneurial Consultants

Consulting professionals bring an evidence-based problem-solving approach into clients' businesses to work alongside them in delivering interventions that create value. Is this skillset something that can be cultivated internally – so that employees become 'intrapreneurial consultants'?

In the previous edition of *Acumen*, Dr. Jefferson Yu-Jen Chen explored the idea of 'the leader as a master consultant', highlighting how students in the GIBS MBA consulting stream have benefited from bridging academic theories with the process of developing and applying effective consulting toolkits in an interdisciplinary way.

Chen suggests various consulting skills and mindsets leaders can embrace to add value within their organisation. Based on this idea, it makes sense that employees could also benefit from tapping into these consulting 'toolkits'.

Eli Golovey, head of supply chain services at Nando's, previously worked in management consulting. He is part of the GIBS MBA consulting team as a mentor, supervisor and assignment marker and believes there's merit in this idea.

He says consultants tend to have a good work ethic, partially due to a heavy workload, and are skilled at pushing past the status quo to get to the root cause of issues, involving asking difficult questions required to do so, and seeing things through a lens of value creation.

"Consultants only make money if they deliver value to clients," he says. "Because you're constantly solving problems, you tend to take that lens into the businesses in which you operate, which means you tend to push harder. You operate by looking at the bigger picture and asking whether this makes sense for the business or not. Good consulting entails looking beyond processes that work and interrogating further if the process is right and or if it could be made better."

Jodi Scholtz, commissioner for the National Lotteries Commission, chief operating officer of the Department of Trade Industry and Competition, and formerly lead administrator at the South African Bureau of Standards (SABS), agrees that businesses can benefit from hiring employees with consulting experience, or cultivating consulting skills internally.

"Consulting comprises a range of skills that are applicable within all organisations," she says, commenting on some of the ways in which these skills were leveraged within the SABS while she was at the helm. "Within the SABS, skills like creative thinking, collaborating across functions and solving wicked problems are just a few examples of consulting skills

Jodi Scholtz

Consulting comprises a range of skills that are applicable within all organisations.

that have been used as part of the turnaround strategy. SABS, while a state-owned entity, also has a commercial mandate, so training employees in the tools of consulting will reap benefits as the SABS needs to transition from being a reactive institution that relies on work to come to it, to actively going out to hunt for new business. Consulting skills would definitely be used in bringing in new business, reshaping existing processes to identify new opportunities and to retain existing customers. Consulting also acts as a cornerstone of a new culture, which underpins the financial turnaround."

The intrapreneurial aspect

Investopedia defines intrapreneurship as "a system that allows an employee to act like an entrepreneur within a company or other organisation. Intrapreneurs are self-motivated, proactive, and action-oriented people who take the initiative to pursue an innovative product or service."

Golovey says consultants and successful entrepreneurs share a key quality of adaptability. This is increasingly important in business as the rate of change in organisations has increased rapidly in recent years (even before Covid, which increased acceleration even further). "Intrapreneurship is about gauging what is happening in the marketplace and adapting," he says.

According to Scholtz, leadership plays a central role in demonstrating intrapreneurial skills. "Leaders should actively encourage people to walk towards their discomfort," she says. "Additionally, the organisational narrative must support the need for each person to think and act like the organisation is their own business. Covid has really had a massive economic impact on companies. A different approach, with different skills, is needed. Infusing intrapreneurial skills into an organisation creates new impetus and can assist from a new business perspective."

Training and deploying intrapreneurial consultants

Consulting skills could be taught through an internal consulting programme, Golovey suggests. "Or, maybe it's through the type of leadership that you give individuals and the mandate and license that you give them," he muses.

Either way, he says it's important to balance empowerment with boundaries. "You need to create an area in which people are able to behave like consultants and maybe some context of when it's not appropriate," he says. "Thinking like a consultant in general is a good thing. But, like all tools in the toolbox, it's not appropriate in every situation. Finding balance is important, as is creating a common purpose amongst everybody that has this way of thinking. You need to ensure they're all solving the same problem. One of the biggest dangers is everybody having a different view of what the end goal is. That'll create an enormous amount of tension within the organisation or between your consultants because they'll all advocate for their solution based on what they think is right."

Scholtz adds that to see the benefits of cultivating intrapreneurial consultants, there needs to be a critical mass of employees with these consulting skills to integrate across functional areas.

"Embedding these consulting or intrapreneurial skills across the organisation would add more value than limiting it to an area," she says. "Bringing intrapreneurial skills into one area only would just frustrate those employees – it's got to be an organisation-wide approach."

Golovey suggests intrapreneurial consultants would add most value at the key pressure points in an organisation. "For example, if you are a large manufacturing organisation, placing these resources on the shop floor might not be the best way to utilise as it is a repetitive task. Perhaps the most valuable place might be in R&D, or in strategy."

Internal vs. external

Cultivating intrapreneurial consultants doesn't necessarily negate the value of external consultants, Scholtz says. They can work well in tandem.

"An example of how this has worked at SABS was when SABS hired a financial turnaround specialist to coach the leadership team on how to develop and implement a turnaround strategy. Each executive had to undergo a 360-degree assessment on skills that high-performing individuals possess to determine where their skills were and to what extent these skills were visible within the SABS," she says.

Eli Golovey

It's got to be an organisation-wide approach.

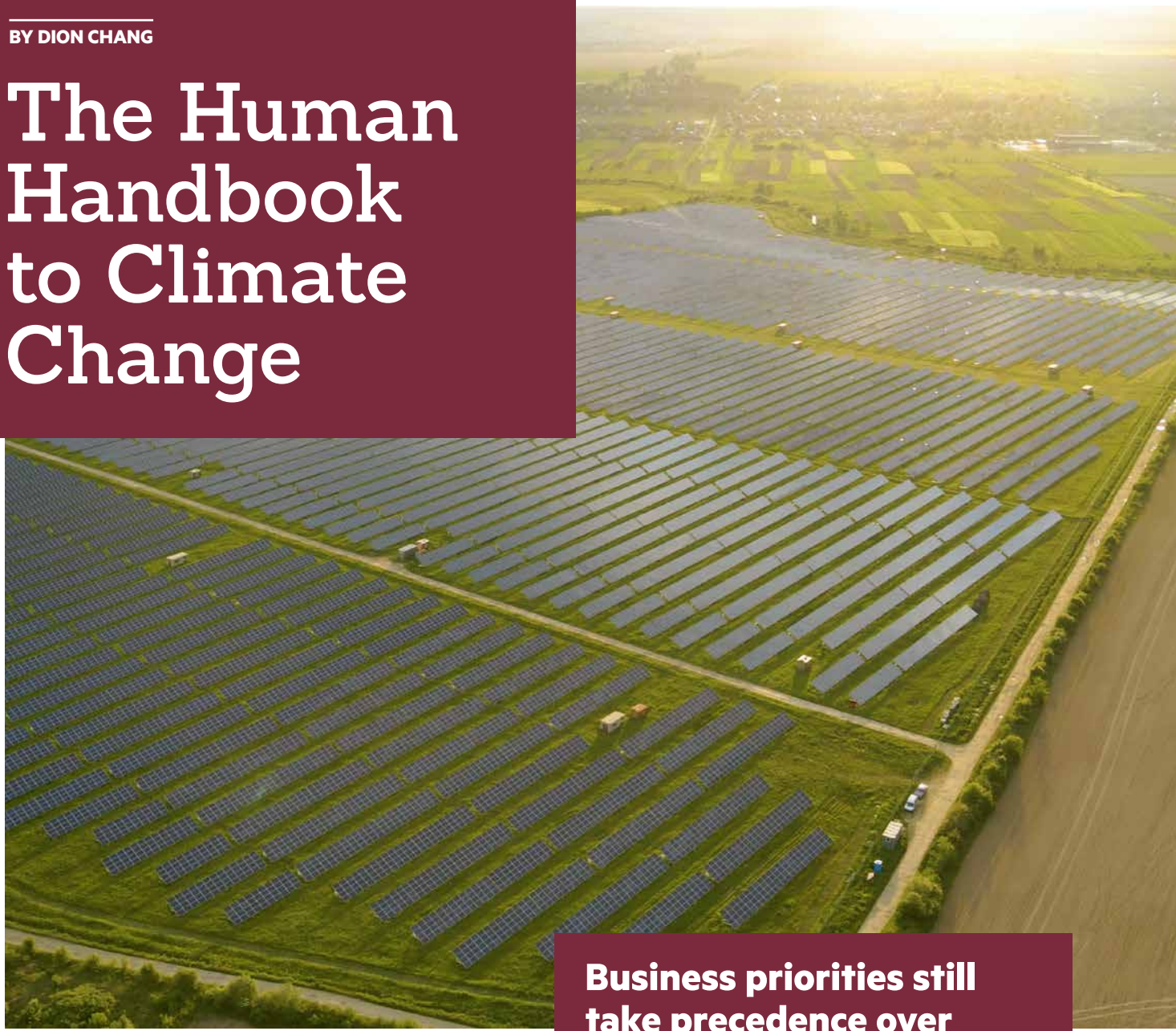
"Our next step was individual coaching, and this process was then cascaded to the next management layer and this is where we saw the most tangible results. People who had been with SABS for more than 20 years were now advocating and internalising the rationale for the turnaround and also understood how their direct role and function contributed to the profitability and productivity within SABS.

"Having this external consultant as the guiding force supporting leadership was a very effective way of empowering the executive team with a new set of skills, as well as support when things did not go as planned. This enabled us to learn a set of new tools and techniques that we applied as part of our key performance areas and reporting. This led us to make mistakes, quickly correct, and continually lead SABS through the turnaround. Our financial reporting strengthened immensely and we were able to look at areas within the business differently and then apply strategies to correct."

Scholtz believes that through training employees in intrapreneurial skills, organisations are able to embed an ethos of continuous improvement. GIBS

BY DION CHANG

The Human Handbook to Climate Change



Business priorities still take precedence over sustainability objectives.

Scepticism of annual gatherings such as the recent Conference of the Parties (COP27) in Egypt is increasing. They just seem to produce more hot air and intangible policies like 'carbon border tariffs'. In tandem, companies are increasingly being accused of greenwashing when their ESG (environmental, social and governance) policies are scrutinised. Rather let's cut through the emissions with a collection of bellwethers that places a human element at the centre of climate debate.

Last year, management consulting company Avanade surveyed 750 tech executives and 750 sustainability leaders around the world. Unsurprisingly, business leaders unanimously agreed that ESG is important but actions speak louder than words.

Fully 45% of the companies said business priorities still take precedence over sustainability objectives, while 25% don't have a plan to reach their goals. Only 14% of executives are attempting to implement their ESG policy and 93% admitted they haven't completed their ESG framework.

The time for debate and procrastination is over. There is ample evidence that global economies are being affected by extreme weather. Food security is increasingly at risk and human displacement is becoming a geopolitical issue.

The plight of farmers

Scorching heat and drought are wreaking havoc in Spain, specifically in the inland province of Jaén, the olive oil capital of the world. It produces half of Spain's oil output, which is more than Italy's total annual yield. Extreme weather has cut the farmers' output by a fifth of the average 50 000 litres of olive oil per season. As one farmer lamented, "No water, no future."

Drought has also ravaged crops across Europe: maize in Romania, rice in Italy, beans in Belgium, and beetroot and garlic in France.

In the Nile Delta, farmers are battling a combination of extreme heat and rising sea levels, which creates salinity in the soil. One farmer has been forced to stop growing tomatoes – they don't grow with the high saline content in the soil – and switch to rice, because the irrigation for this crop helps cleanse the soil. "If you leave the land 10 days without watering it, you'll find salt on the surface," he explains. The Nile Delta accounts for more than a third of Egypt's agricultural land.

In South Africa, wine farmers are also having to switch cultivars. Global warming has not only shifted the growing season, but has also altered the grapes' sugar content, forcing farmers to grow warmer-climate wine varieties, such as Cabernet Sauvignon, instead of cooler-climate varieties like Chardonnay.

Animals are 'shape-shifting'

Scientists at Deakin University in Australia are finding evidence that animals have started to "shape-shift" to accommodate changes in climate patterns. They are discovering that animals – birds in particular – are growing larger beaks, legs and ears, which allow them to better regulate their body temperatures as global warming becomes more pronounced. It shows that animals are evolving, but does not necessarily mean that they are coping with climate change.

The term "adapt or die" has never been more apt.

Climate refugees and climate-proof housing

Back-to-back flooding in KwaZulu-Natal in 2021 brought the issue of climate change closer to home and gave South Africans a glimpse of what extreme weather can unleash, and the human suffering it can bring.

Around the world "climate refugees" have become common: people who are no longer prepared to live in an area that is repeatedly affected by extreme weather, or who are tragically displaced by its aftermath. The 2021 floods in Pakistan displaced 33 million people.

Architects from Amsterdam to Lagos are now experimenting with "amphibious homes" to circumvent flood disasters. These floating homes are either built on water or have the ability float when water levels rise. The latter are designed to sit on the ground, like conventional houses, but in the event of flooding they can float as the water level rises and are moored to their location to prevent any relocation.

The South Korean government is taking climate-proof housing seriously by launching the world's first self-sustaining floating city called Oceanix Busan. This floating city will accommodate 12 000 people and includes residential apartments, offices, parks, green energy grids and hydroponic farms. It will generate 100% of its energy and water needs. The first stage of the project will be ready in 2025.

Climate shelter apps

If ever there was a bellwether for climate change it is the Cool Walks app launched in 2021 by the city of Barcelona. The app shows pedestrians alternative routes to a destination with maximum shade and identifies drinking fountains along the way.

In 2022 the city introduced a new app, this time providing locations of "climate shelters" dotted around the city. The shelters are a mix of existing municipal facilities and public spaces, which are pinned on an online map and made available to residents who need to escape extreme temperatures. The city more than doubled the number of its climate shelters from 70 to 163 in 2021. They are open to the public from June to September.

The city's initiative means that 90% of the population now live within a 10-minute walk of a climate shelter, with the aim of allowing all Barcelona residents to be within a five-minute walk of a shelter by 2030.

'Climate refugees' have become common.

Climate litigation: The Gen Z strategy

Gen Z – the first digital natives of humanity – are proving to be the social justice warriors who are leading the new wave of climate litigation. Teenagers across the globe are fighting climate change in court.

In 2017, six youth activists from Portugal filed the first climate change case against 33 countries at the European Court of Human Rights. The crowdfunded legal action broke new ground by suing multiple states both for the emissions within their borders and also for the climate impact.

In 2018, 25 young Colombians took their government to court demanding a right to a healthy environment free of deforestation and the irreversible impacts from climate change.

In 2019, seven Peruvian teens filed a complaint against the Peruvian state for its alleged failure to adequately halt deforestation in the Amazon, arguing that their futures will be compromised due to climate change.

In Australia, Mark McVeigh was just 24 when he sued a superfund for failing to mitigate the risks of climate change in his investment portfolio. He alleged that the company, Rest, breached the Superannuation Industry Act and the Corporations Act by failing to manage risks, which could include fossil fuel companies plummeting in value or infrastructure being damaged by extreme weather. In a landmark ruling in 2020, which sent ripple waves across the investment industry, he won his case.

More than 1 400 climate-related lawsuits have been filed around the world since the late 1980s but the last four years have seen the largest number of cases. Generation Z started coming of age at the same time. Climate litigation is their new battleground.

Dion Chang is the founder of Flux Trends.
For more trends as business strategy, visit www.fluxtrends.com.

KEY TAKEAWAYS

In the financial world the term "green swan" is becoming more common. The term mimics the expression "black swan", which refers to an unpredictable event with severe economic consequences.

The South African Reserve Bank has warned that climate change will create policy risks for the bank and that disruptive "green swan events" would have a negative impact on business and the financial stability of the country.

In the last three years the climate change conversation has moved rapidly from an academic/scientific debate to one of high-level risk for global economies and humanitarian disasters.

Business leaders dragging their heels on their ESG policies is like Nero fiddling while Rome burns. If the growing evidence of how humanity is being adversely impacted by climate change is not enough to motivate for collective change, then one can only assume there is a dirty lump of coal where their hearts should be. GIBS

BY STEPHEN SMITH

The Business of Motoring

Jeep goes OTT, and Mercedes keeps it classy.

Is bigger better?

Jeep Gladiator

WHAT IS IT?

Jeep resurrected the Gladiator nameplate that first saw light in the early 1960s, slapping it onto a bakkie that shares much of its appearance with the iconic Wrangler.

WHY THIS?

This is the biggest, most expensive bakkie in South Africa, and it has almost as much charm as it does horsepower. It helps that this is the Rubicon model, which means it is a pukka off-roader with all the necessary hardware to flatten mountains and churn mud into mousse. And we haven't even mentioned that it's a convertible...

OUTSIDE

The bakkie is over 5m long and as nimble as gangster in concrete galoshes. But it works – boy, does it work. The combination of the Wrangler's timeless appearance, the behemoth proportions and the bakkie configuration is possibly the best in the Jeep line-up for years.

The Rubicon spec level adds brash 17-inch wheels shod with 32-inch (255/75R17) BF Goodrich All Terrain tyres, which are exactly what the vehicle deserves. A hard cover seals the bin, which is massive – 1 531mm x 2 067mm when the tailgate is open!

I mentioned that it's convertible, didn't I? Yip, the fibreglass roof can be manually removed in two sections, while the doors can also be unbolted. Finally, you can even fold the windscreen flat against the bonnet, if you really want that wind-in-your-hair (or bug-in-your-teeth) feeling.

GO GET IT

Is it a bargain? No – it's R1 299 000 without any extras. For that you also get a 3-year/100 000km maintenance plan and 5-year/100 000km warranty. For the nitty-gritty, visit www.jeep.co.za.

INSIDE

It's not often that a Jeep interior wins me over almost unconditionally, but the Gladiator's did just that. It feels just like it should – rugged and utilitarian, but with enough luxury for you to be comfortable. The sound system is good too – wasn't it another Gladiator who asked, "Are you not entertained?"

I loved the mix of touchscreen control and regular dials and buttons – it's quick to use and intuitive, which is what every entertainment system should be.

If there was one thing that I didn't like, it was the fibreglass roof – yes, it is cool that it can come off, but you'll hardly ever do that and for the rest of the time you're looking at bare fibreglass. Not quite good enough for a premium vehicle.

THE DRIVE

There's a 3.6-litre Pentastar V6 petrol engine powering this beast, producing some 209kW of power and 347Nm of torque, paired to an 8-speed automatic. It's a lovely engine that supplies its torque smoothly and predictably, albeit not fuel-efficiently (we averaged a little north of 14L/100km), but I feel that Jeep should have gone with two V8 options – one diesel and one petrol. That would have made sense.

The Rubicon is tricked out with a limited-slip diff, front and rear diff lock, a sway-bar disconnect feature (for better axle articulation), an Offroad+ button that dials in the necessary electronic aids, and a low-range transfer case. It's also got Fox suspension (like another big bakkie on the market), and those chunky tyres. As you'd expect, it will go more or less anywhere. It is hampered by its wheelbase and its overall dimensions, though.

On the road it was brilliant, actually – yes, it wanders about a little, but the suspension is exceptional for both comfort and roadholding.

FINAL WORD

A vast, powerful bakkie that is good on tar and great offroad. What's not to like? More than all of this, though, is that from behind the wheel the Gladiator offers that X-factor that is so rare these days, and for that it should be commended.

Keeping it classy!

Mercedes-Benz C220d

WHAT IS IT?

The latest iteration of the venerable Mercedes-Benz C-Class is more luxurious than ever, having lifted many styling cues and trickle-down technology from the S-Class. It remains a thoroughly appealing sedan, despite its existence in the age of SUVs.

WHY THIS?

It's a great car, but we should also be cognisant of the fact that R13 billion has already been invested in numerous upgrades at the East London, South Africa, plant in preparation for the production of this new model, providing a major boost to the local automotive industry.

We're not suggesting you buy a C-Class because it will boost the economy (most units are actually exported), but if you can't decide between this and an Audi, maybe the proudly SA badge will sway you...

GO GET IT

At R888 000 for the C200 and R950 650 for the C220d, the C-Class sits in the luxury price range, but it delivers a fitting experience. The standard Mercedes 5-year/100 000km service plan and maintenance plan are included. For the nitty-gritty, visit www.mercedes-benz.co.za.

OUTSIDE

The design elements from the S-Class are obvious, but the C-Class seems to actually wear them better, just the way athletes wear clothes better than businesspeople... In fact, this must be the most athletic-looking C-Class to date, all taut lines and no spare weight around the middle (or anywhere else).

A few highlights are the unmistakably Mercedes 18- or 19-inch rims, star-patterned diamond grille and both sets of lights. It's a fantastic blend of dynamic poise with the promise of luxury.

INSIDE

This new vehicle is bigger than the one it replaces so has more interior space, although it still feels a little tighter than some rivals. As a family car it excels – we went on a family road trip, two adults and two wee bairns, and the boot handled our luggage with space to spare.

The interior really is S-Class derived, the user experience dominated by a 11.9-inch touchscreen that comes directly from the S. Other than that, the dash is all clean lines and gorgeous air vents, while a second screen displays the gauges in their traditional position behind the steering wheel. This screen can be changed to suit your mood, from classic dials to pure digital extravaganza.

Everything feels good to the touch, from the leather-clad steering wheel to the few physical buttons, to the seats and the dash itself. Pure class. And now I'm going to blow your mind – you have to move the front seats backwards and forwards manually.

THE DRIVE

It may look sporty, but the C-Class errs on the side of comfort rather than out-and-out dynamic handling. The ride is supple and a great balance for daily driving, be it on the open road, around town or a back road that wiggles through the countryside. If you feel the need, continuously adjustable damping and a sport suspension are (not cheap) options.

Two mild-hybrid engine choices are available, a 1.5 petrol in the C200 and a 2-litre turbodiesel in the C220d, and nine-speed automatic gearboxes are standard on both. The former achieves 150kW and 300Nm, while the C220d delivers 147kW and 440Nm, with a combined fuel consumption of 4.6L/100km. Actually, this was the most economical non-electric car I have ever driven – on the open road over a distance of 200km we used 3.9L/100km! There's no comparison – the C220d is by far the more impressive car to drive.

FINAL WORD

I will be advocating the pleasure of driving a premium sedan rather than an SUV until I draw my dying breath, and the C220d fits the bill perfectly. What I don't love are long options lists, and the C-Class is saddled with one of them. GIBS

BY AKI ANASTASIOU

Techno for Business

CES 2023 - Human Security for All

World-leading tech show stages comeback 2023 edition

One of my favourite tech shows has got to be CES, which takes place every year during the first week of January in Las Vegas. My last trip was in 2020 just before Covid impacted everything globally. The 2021 edition of CES was virtual and 2022 was in person once again. This show still remains the most influential tech event in the world – a place where breakthrough technologies and global innovators meet. The 2023 edition showed signs of getting back to normal, although the number of visitors and exhibitors were not what they used to be. It's a confidence thing, and globally conferences and in-person events have still not completely recovered to pre-Covid levels.

Still, more than 115 000 people attended, and there were more than 3 200 exhibitors.

Having said that, we did get a glimpse of where consumer electronics is heading. The show's theme, "Human Security for All", looked at food security, access to healthcare for all, environmental protection and personal safety using technology to break through these barriers. This year there was a strong focus on sustainability and how tech can influence a better planet, as well as on automotive and mobility issues, 5G, Web3 and the metaverse.

Smarter FridgeCam

Turn your fridge into a smart fridge!

Price $35

There are a plethora of smart fridges around. But what if you have a fridge that isn't smart? Well, you get the Smarter FridgeCam. FridgeCam is the world's first wireless fridge camera, which has been designed to help reduce food waste and save money whilst also helping the environment. Installation is simple: just stick the FridgeCam on the inside of your fridge door and pair it with the app. It will then start to take pictures and identify the products that are in your fridge and when they are consumed. This is all made possible with Smarter's patented GyroSense technology. The camera takes a picture as the fridge door is closed, giving an image of the full contents, just like a human would see into the fridge. In this scenario, the computer vision performs at its optimum level and can track even the most difficult-to-see items that may be hidden at the back of the fridge, resulting in a high level of accuracy. The new platform can also be used with Alexa, Siri or Google. You simply use your voice to describe what has been used and through a combination of inputs and outputs, the kitchen can be managed using artificial intelligence.
So, you thought this was all smart, right? Well, it gets better!

The company also utilises a software platform called Chefling. The Chefling app knows exactly what you have in your pantry and fridge and can then suggest recipes based on those ingredients.

Wags Freedom Smart Collar

The ultimate dog collar for your pet

Price: $300

Where would CES be without another pet accessory? It is a massive market, worth some $150 billion, so innovators are always looking for the next big thing. The Wags Freedom Smart Collar not only monitors where your pet is via GPS but also checks your dog's health and keeps it safe within its boundaries. Using geofencing technology, a user sets up virtual fences via the Wags smartphone app, which will automatically, in real time, keep your dog in the confined location you choose. What is unique about this smart collar is that it doesn't shock your dog when it moves out of its territory. Instead, the Freedom collar uses vibration, audible cues, and ultrasonic sounds (similar to a dog whistle) to make sure the dog stays where it should be. This dog collar also monitors activities and sleep patterns that will give owners a better insight into the health of their pets. It even has a built in SIM card so there is always a GPS location.

BMW i Vision Dee

A concept car that's a digital experience

BMW has always been at the forefront of digital technology. At CES 2023 it presented its concept vehicle "Dee", which stands for Digital Emotional Experience. It's a vision vehicle that foresees a completely new kind of interaction and communication between humans and vehicles. The look of this prototype has the DNA of BMW, automatically reminding me of the magnificent i8. BMW showcased what is possible when hardware and software merge. This is where the future lies, according to BMW. How do we exploit the full potential of digitalisation to transform the car into an intelligent companion?

Emotional intelligence is at the core of this driving experience and what BMW wants to achieve is a car that understands and anticipates what the driver wants. The BMW i Vision Dee combines digital and analogue, bringing a virtual world-like experience into the car and opening up new levels of interaction. This is achieved via the so-called BMW Mixed Reality Slider and the advanced BMW Head-Up-Display. BMW says this will start being incorporated into many of its vehicles from 2025.

The vision vehicle is emotionally intelligent: it interacts with its environment. The vehicle uses its numerous sensors to register the identity and position of a person and reacts when they approach, automatically opening doors to welcome the driver as they approach the cockpit.

And if you get bored with your car's colour, you can change it, thanks to BMW's iX E Ink. The BMW i Vision Dee can display up to 32 different colours.

Unistellar eQuinox 2 Smart Telescope

Seeing the cosmos from a whole new dimension

Price $2 500

Amateur astronomers and lovers of the cosmos will be enthralled by the Unistellar eQuinox 2 Smart Telescope. Living in a big city, light pollution is probably the biggest deterrent to getting a clear view of the stars and galaxies above. Novice stargazers can now get a clear view of Jupiter's great red spot or even the clarity of the purple colours of the Orion Nebula. This telescope features the latest advancements in optics and image processing, making astronomy accessible, even from light-polluted cities. Unistellar's Smart Light Pollution Reduction digitally removes negative effects of light pollution using smart algorithms, to enable users in heavily urban settings to view distant reaches of the galaxy and beyond, in incredible detail and striking colours. Once your pair the smart telescope to your phone and establish your GPS location, you can start directing the telescope to which part of the sky you want to explore. The eQuinox 2 uses its Autonomous Field Detection – industry's simplest and most powerful smart orientation technology for telescopes – to orient itself automatically, even when few stars are visible. It's pricey, but what an amazing experience if you love the stars and planets. GIBS

BY CHRIS GIBBONS

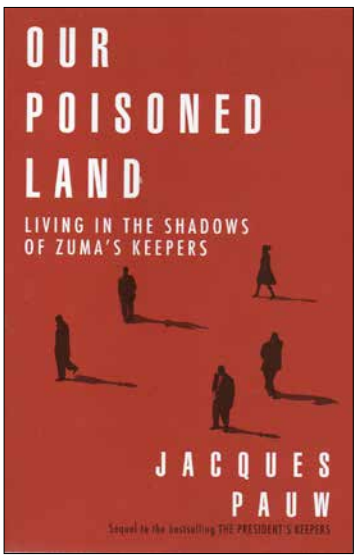
Books

Our Poisoned Land
Living in the Shadows of Zuma's Keepers

Jacques Pauw

Tafelberg – R300

In *Our Poisoned Land*, veteran investigative journalist Jacques Pauw picks up where he left off with his best-selling *The President's Keepers*. The latter exposed the mayhem of the Zuma years: the corruption, thievery and moral bankruptcy that led to the flight of the Guptas, state capture and the Nugent and Zondo Commissions. The coming to power in 2018 of Zuma's deputy, Cyril Ramaphosa, was supposed to have put a stop to all that, so it's deeply disturbing to realise that the big clean-up has left piles of dirt still festering in many critical parts of our society.



Since the publication of *The President's Keepers* five years ago there have been any number of similar exposés by other investigative writers and Pauw draws on their work extensively, giving full credit as he does so. He also produces his own fresh research and insight into a number of already well-known subjects, such as the relationship between tobacco smuggler and tax evader Adriano Mazzotti and EFF leader Julius Malema. Pauw produces clear evidence that Mazzotti has been funding Malema personally along with his political party. Juxtaposed with meticulous investigation by *Daily Maverick's* Pauli van Wyk into the flows of cash from looted VBS Bank to Malema, his sidekick Floyd Shivambu and the EFF, Pauw asks a simple question: how is it that neither Malema nor Shivambu have been arrested and charged with fraud and corruption?

This is the central paradox that underpins the whole book. How is it that nearly five years after Ramaphosa came to power, so many of the central characters of the state capture years are still walking free? How is that so many are still in the employ of the state? For example, how could Ramaphosa have shuffled tainted spy boss Arthur Fraser into the top job at Correctional Services? That decision came back to bite him twice, first when Fraser released former president Jacob Zuma on medical parole and then when he laid criminal charges against the President over the cash-in-sofa affair. Far from being led away in handcuffs, so many of Zuma's arch-facilitators have been handed soft jobs, including cushy ambassadorships.

If you haven't read any of the many other investigations, *Our Poisoned Land* is a very handy compendium of the many severe problems still facing South Africa. Pauw deals in depth with the Passenger Rail Agency of South Africa (Prasa) and Lucky Montana, as well as the South African Revenue Service (Sars), the Guptas and the SAPS/Hawks/State Security/Crime Intelligence nexus. He chooses to ignore Eskom, but in this context, and given the scope of the power utility's problems, that's no oversight.

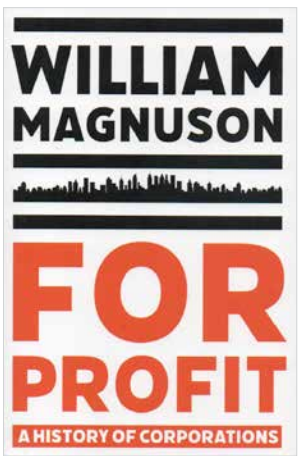
Where the book is deficient, however, is in the amount of attention paid to Cyril Ramaphosa himself. His promise of great change has turned out to be hollow, many of his decisions are just plain strange, while others are obfuscatory. He rarely, if ever, holds a news conference; in many respects, when it comes to dealing with this vast list of corrupt officials and crooks, Ramaphosa is simply absent. That absence hangs like fog over *Our Poisoned Land*. With his re-election at the end of last year as ANC president, perhaps things will change? We have to hope so because, if not, the poison which Jacques Pauw describes so eloquently will seep ever deeper into the soul of our nation.

For Profit
A History of Corporations

William Magnuson

Basic Books (John Murray) – R405

What a useful and interesting book this is! Just as the title implies, William Magnuson, a professor at Texas A&M Law School and former *Washington Post* journalist, has set out a highly readable yet erudite overview of the development of corporations – the firm, if you prefer – from Roman times to the present day. He does this by focusing on eight key developments: Rome's societates publicanorum, the money lenders, tax collectors and tax farmers essential to the functioning of the Roman state; the Medici Bank in 15th-century Florence; the East India Company in England in the 17th and 18th centuries; the birth of the transcontinental railroad in 19th century America and, towards the end of that epoch, the emergence of both Henry Ford's assembly line and the giant Standard Oil Company, which later became Exxon. Finally, Magnuson dissects the corporate raider Kohlberg Kravis Roberts (KKR) and the start-up Facebook.



A central question linking each section is: when is a corporation ever a force for the good? Also, why did each one of these corporations or institutions fail or, in Facebook's case, begin to decay? It's striking that almost all were founded with the benefit of society in mind, yet, in their success, almost all were overtaken by greed and corruption.

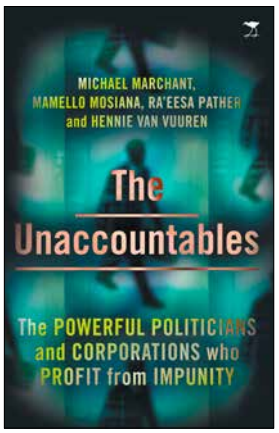
Magnuson concludes with a list of eight recommendations designed to allow modern corporations to continue to deliver the benefits of which these often massively powerful organisations are capable, but to avoid the excesses to which so many fall prey. It's good, sound advice, if a little trite: Don't destroy the planet; treat your workers right, and so on – but I suspect human nature being what it is, future generations will ignore it, just like their ancestors did.

Don't let that detract, though. This is a most valuable read, especially for anyone at the start of a career inside a corporation.

The Unaccountables
The Powerful Politicians and Corporations Who Profit from Impunity

Michael Marchant, Mamello Mosiana, Ra'eesa Pather and Hennie van Vuuren

Jacana – R280



A very different of view corporations, and one that links directly to Jacques Pauw's *Our Poisoned Land*, is found in *The Unaccountables*. It's the work of the team at Open Secrets, a non-profit organisation that investigates economic crime and human rights abuses. In essence, it's a catalogue of the companies, many of them multinationals and household names, that have profited from the excesses wrought by so many for so long on the people of South Africa.

No list of this nature would be complete unless it began with the bankrolling of the National Party and apartheid. Step forward Sanlam, Barlow Rand and Shoprite, along with the likes of PG Glass, Tedelex, Macsteel and Altron. One major beneficiary was Naspers, which the authors describe as the 'tap root' of the National Party. Given its dominant position on the JSE through its investment in Tencent, China's largest internet company, it's also probably the 'tap root' for many of our pensions!

We navigate through the arms deal – former president Jacob Zuma and French arms dealer Thales take the stage, along with former SANDF general Siphiwe Nyanda and BAE (then British Aerospace) – and move into what might loosely be called the modern world. Here we find – still – Jacob Zuma, but alongside him are the Guptas, and waiting in the wings, Lucky Montana, Prasa and Roy Moodley. All of the Big Four financial services firms make an appearance, and as you might expect, consultancies McKinsey, Bain & Co., and the Boston Consulting Group.

It's a long list, too long to recap in full here, and many of their offences are well known if only as a result of the Zondo Commission. But assembled in this chapter-and-verse fashion, one astonishing fact stands out: not a single one of these companies or people have been found guilty of an offence by a South African court of law.

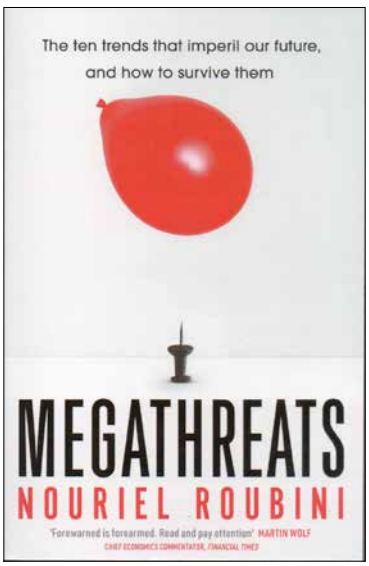
It would seem that not only are they unaccountable, as this book suggests, but they also remain untouchable.

Megathreats

Nouriel Roubini

John Murray – R405

You may have heard the expression "music to slit your wrists by". In other words, music so dark, depressing and daunting that it points you in one direction only. Mahler trends to have that effect on me, but until I read Nouriel Roubini's *Megathreats*, I had never come across it in book form before.



Roubini is Emeritus Professor of Economics at New York University's Stern School of Business but perhaps better known as 'Dr. Doom', the man who so presciently forecast the great financial crisis of 2008. As he describes it, from early 2006, he looked around, observed a vast number of ridiculous home loans – sub-prime mortgages – allied to increasingly devious and obscure financial derivatives, noted that they were producing a housing bubble of epic proportions and stated that, like all bubbles, it would very shortly burst.

Well, he's at it again, but this time on a much grander scale. Roubini analyses not just one, but ten megathreats, which threaten not only the existence of society as we know it, but also the end of much of human civilisation and even, dare I say it, the existence of the human race.

No prizes for guessing that climate change and global warming is top of his list, but add to that the global debt mountain, stagflation, aging populations, currency meltdowns, the end of globalisation and the rise of artificial intelligence (AI), to say nothing of the new Cold War between the US and China, the Russian invasion of Ukraine, unfettered migration from collapsing economies, surging populism and autocracy and new, unforeseen pandemics.

Each one of those alone is scary enough and potentially super-destructive but Roubini's thesis is that most of them are already heading towards us at an alarming speed; not one but all are likely to hit more or less at the same time, with cataclysmic consequences.

He does not claim infallibility, but his analysis of each of the megathreats is compellingly logical, drawing on facts that are as clearly observable as sub-prime mortgages back in the day. Is the earth suffering from more and more extreme climate events? Yes. Is the amount of public and private debt in the world growing or shrinking? It's growing. Will China's Xi Jinping back down over Taiwan? Almost certainly not. Is populism on the rise? Well, Brexit and the election of Donald Trump have both already happened. And so on.

Roubini pulls his forecasts together into two scenarios at the end of the book. One he calls 'dark destiny', the other a 'more "Utopian" future'. In the former, all the lights go out at once, and impoverished humanity, wracked by scorching storms and food shortages caused by drought, is left either in the grip of people like Vladimir Putin or the clutches of mind-controlling super-computers whose AI has out-thought us.

In the second, we all pull together, get a grip on global finances, eradicate inequality and use some of that AI to help achieve these seemingly impossible ends. Is that likely? Well, in fairness, he points out that AI has already cracked one of the great problems – protein folding – that had baffled human scientists for more than 50 years. This, he says, will lead to significant bio-medical breakthroughs. So, yes, the potential is there.

Which way does Roubini himself jump? Spoiler alert: I think I'll go and listen to some Mahler; I need it to cheer me up. **GIBS**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