

Lucidum Case Study



SUPPLY CHAIN RISK IN SOUTH AFRICA AND BEYOND

Presented by

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1. PREFACE

The world is constantly in flux. organisational leaders must be resilient and have an astute mindset to deal with volatility, uncertainty, complexity, and ambiguity to create and sustain value for their organisations. COVID-19, surging global debt, inflation and interest rate hikes (last experienced in the 1970s), together with incessant geopolitical conflicts have unsettled global, regional, and local supply chains. During the same time, SA experienced the aftermath of state capture, rampant organised crime, socio-political and socio-economic shocks, together with the near collapse of two of the most important state-owned entities (i.e. Eskom and Transnet). These developments have far-reaching impacts on the infrastructure investments needed to drive the economic growth required to reduce inequality, poverty, unemployment, and organised crime in the country. Eskom and Transnet are pivotal to achieve these goals. It is my hope that the content of this case study will enable risk managers in South Africa to facilitate organisational decisions that support the recovery of South Africa's key supply chain competencies and limit the likelihood and impact of related risks on their organisations and society at large.



Tjaart Van Den Berg

Tjaart is an experienced risk-reward expert trusted by Boards and Executives to respond to new market entry risks stemming from economic, financial, technological, political, safety, and competition drivers. He advises on processes, policies, systems, and governance controls to achieve ambitious business goals.

2. FOREWORD



Christelle Marais

Christelle is a seasoned Executive and Governing Body member and advisor with deep experience in various industries. Her focus is to enable Boards (and their Audit, Risk, and Social & Ethics Committees) and Executive Committees to govern risk and make informed decisions based on robust risk governance models aligned to strategy.

Risk professionals in South Africa face a plethora of challenges, not least of which is the dearth of time to conduct the in-depth analyses required to advise their organisations optimally on the risks they face and how to respond to those risks. When it comes to applying industry relevant research (information gathering, processing, interpreting, and reporting) to a specific organisation, nothing replaces the risk professional's human insight, intuition, and experience (based on his/her deep understanding of their organisation's specific and unique context). However, very often there is a need for South Africa specific context to assist risk professionals in their interpretation, or just to benchmark their ideas against those of their peers. It is in this spirit that Lucidum collaborates with deep industry experts, such as Tjaart Van Den Berg, who contributes from his many years of experience to the broader body of knowledge available to risk professionals – thereby enabling them to serve their organisations, their industries, and the country better. It is hoped that this case study is the first of many to come and that this will galvanise a groundswell of knowledge sharing, risk specific interpretive support, mentoring circles, and other collaborative initiatives to help the risk management profession to thrive and serve South Africa in the best way that it can.

3. EXECUTIVE SUMMARY

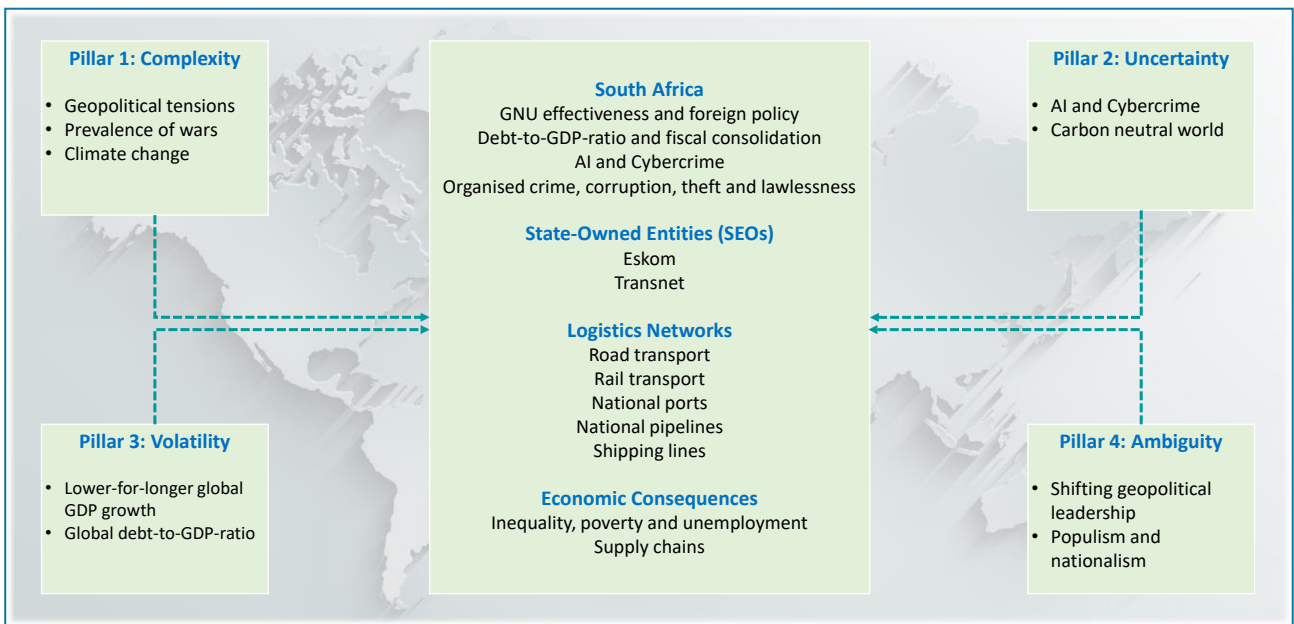
3.1. PURPOSE

To investigate the prevailing global, regional, and national systemic risks' impact on Eskom's and Transnet's service delivery and the far-reaching consequences on the effectiveness of the logistics networks and economic growth in South Africa.

3.2. APPROACH

A hypothetical or mental model as reflected in **Figure 1** has been crafted to explain the supply chain risks in South Africa and beyond. The mental model starts with the Vulnerability-Uncertainty-Complexity-Ambiguity (VUCA) model, identifying and prioritising predominant global risks and their respective impacts on South Africa. After that, the mental model investigates the co-dependence of the local supply chains on Eskom's and Transnet's performance and these two state owned entities' impact on the effectiveness of the logistics networks in the country, specifically road, rail, pipelines, and ports.

Figure 1



3.3. PROBLEM STATEMENT

Prevailing macro global and national systemic risks are negatively impacting the viability of Eskom's and Transnet's service delivery and weakens the effectiveness of the logistics networks and economic growth in the country. **Figure 1** predicates the problem statement and displays the interconnectedness between the systemic risks, state owned entities, logistics networks, and the economic impact on South Africa. The VUCA-model was created by the United States Army War College in the late 1980s to early 1990s to refer to the changing conditions of the world after the Cold War. Since then, the VUCA-model has been adopted by academia and business professionals and has mostly been used to develop strategies so that organisations can cope with, and thrive, in unpredictable external environments and (for purposes of the analysis in this case study) to cope with systemic risks impacting logistics and supply chains.

3.4. KEY FINDINGS

- a) The adequacy and effectiveness of efforts to manage the risks to South African society and organisations are often impeded by the fact that there is little co-ordinated effort between various organisations to learn from each other and leverage joint contributions, especially when root causes affect the entire economy (as is the case with supply chain risk caused by the failures of Eskom and Transnet).
- b) The opportunities to optimise the impact of skills and expertise, avoid duplication of time and effort, and save money are immense. In fact, in this case, the whole (of the benefits that can be realised for South Africa) is indeed greater than the sum of the parts (of individual organisations' efforts).
- c) Risk Practitioners, in particular, do not collaborate sufficiently across organisational and industry or sector boundaries. There is immense opportunity to leverage deep risk response skills across South Africa, but these Practitioners don't always reach out to learn and share from each other in the interest of their own organisations and industries, but also the country as a whole.

4. TARGET AUDIENCE

4.1. WHO WILL BENEFIT FROM READING THE CASE STUDY

Academia, Boards and other Governing Bodies, Executive Committees, Chief Executive Officers, Chief Risk Officers, and Risk Practitioners will benefit from the case study, which will enable them to conduct a high-level analysis of the resilience of their own organisation's supply chains to endure global, regional, and local systemic risks and the expected impact on their designated logistics networks.

4.2. WHAT YOU WILL LEARN FROM THE CASE STUDY

Readers will be able to apply the VUCA-model as a guardrail to identify systemic risks at a global, regional, and national level and to comprehend the domino effects of these risks on two of South Africa's most important state owned entities (i.e. Eskom and Transnet), which is currently grinding down the effectiveness of South Africa's logistics networks (i.e. road, rail, pipeline and port infrastructure) and as a result, disabling national economic growth with the consequential negative societal and developmental impacts.

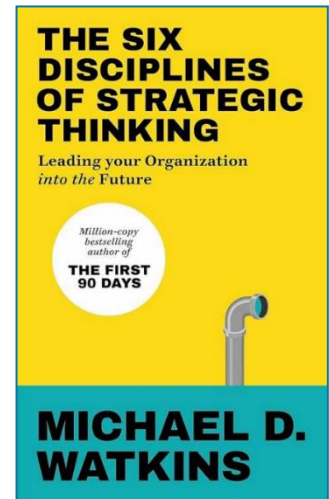
4.3. APPLYING THE CASE STUDY TO YOUR ORGANISATION

Key considerations or questions to ponder for readers' own organisation when reading the case study include the following:

- a) How robust are your organisation's purpose, vision, mission, long-term goals (strategic intent), competencies, and capability to cope with the global developments and risks referred to in the four pillars of the Complexity-Uncertainty-Volatility-Ambiguity (CUVA) model?
- b) How resilient are your organisation's global supply chains given the risks in the four pillars of the CUVA-model?
- c) Are your organisation's local supply chains capable of withstanding the developments and risks related to South Africa, Eskom, Transnet, and the country's logistics networks?
- d) Given the review of the three questions above, are there any weaknesses in your organisation's supply chains or gaps in your organisation's top risk landscape?

5. DETAILED FINDINGS

The case study follows the outline of [Figure 1](#) and starts with the four pillars of the VUCA-model. Each pillar explains the context for the corresponding systemic risks (hereafter referred to as risks). These risks are universal by nature and are advocated through narratives. In his book, *The Six Disciplines of Strategic Thinking*, Professor MD Watkins changed the VUCA acronym to CUVA and is of the view that **complexity is the core challenge** which most leaders are facing and should therefore be the starting point for the identification of risks – forming the bedrock of the model.



The Six Disciplines of Strategic Thinking outlines a framework for leaders to develop structured and effective strategic thinking. These six disciplines focus on key actions and habits that to approach strategic challenges more effectively.

1. **Clarifying the Strategy:** Defining and clarifying the strategy include understanding the organisation's vision, mission, and objectives, ensuring that strategic goals are aligned with the long-term vision.
2. **Making Strategic Choices:** Making well-informed and deliberate strategic decisions depends on leaders' ability to assess options, understand trade-offs, and choose a path that best fits the organisation's needs and context.
3. **Generating Insights:** Effective strategic thinking requires the generation of insights by interpreting data, identifying patterns, and understanding market dynamics – all aimed at making informed decisions and anticipating external changes.
4. **Managing Strategic Priorities:** Leaders must focus on the right priorities to advance their strategy: i.e. setting goals, allocating resources, and making sure the organization is focused on key initiatives to drive strategic success.
5. **Aligning the Organisation:** Strategic thinking must be executed throughout the organisation, relying on effectively aligning the people, processes, and culture of the organisation with the strategy to ensure collective focus and coordination in achieving strategic goals.
6. **Learning and Adapting:** Continuous learning and adapting to changing circumstances rely on the flexibility of effective strategic thinkers to learn from experience, and adjust their strategies based on new information or shifts in the external environment.

Overall, this work emphasises that strategic thinking is not just a skill but a discipline that requires practice, reflection, and consistent application across these six areas. The goal is to build a systematic, ongoing approach to thinking strategically at all levels of leadership.

5.1. THE CUVA-MODEL

Pillar 1 – Complexity

The connectedness and interdependencies of factors which arise from multiple variables that create complex results.

Salient developments/risks: (a) Geopolitical Tensions, (b) Prevalence of Wars, and (c) Climate Change.

- (a) Geopolitical tensions are largely driven by tensions between North Atlantic Trade Organisation (NATO) countries, the United States, Russia, and China over trade, technology (i.e. sourcing of computer chips), cyber warfare (i.e. Russia and China targeting the West), military presence in the Middle East, Ukraine, and Asia-Pacific, embargoes (i.e. against Russian oil and banks), and tariff wars (i.e. specifically between the United States and China) disrupting global markets and supply chains.
- (b) According to the *Global Peace Index 2024 published by the Institute for Economics and Peace*, there are ninety-two countries involved in some form of conflict beyond their borders (as of 2022). More worrying, is the growing perception that a number of these conflicts are not only unacceptably devastating, but also unwinnable. This is the highest number since World War II and varies from civil wars and territorial disputes to international military engagements. The Russia-Ukraine war and the Middle East tensions and instability (i.e. Israel, Hamas, Hezbollah, Iran) continue to destabilise port operations globally, increasing shipping distances, transit times and costs, as shipowners are forced to redirect their commercial fleets to safer shipping routes away from the Black Sea (Russia and Ukraine) and Red Sea (Middle East).
- (c) Climate change has significantly increased the frequency and intensity of droughts, floods, heat waves, hurricanes, cyclones, wildfires, and other extreme weather events causing severe disruptions to supply chains by damaging infrastructure, halting transportation, and delaying production. Ports and coastal facilities are at risk from rising sea levels and pose a long-term threat to global supply chains, particularly those reliant on coastal transportation networks.



A lack of predictability or the difficulty in understanding the full impact of future events and make informed decisions due to insufficient or conflicting information.

Salient developments/risks: (a) Artificial Intelligence (AI) and Cybercrime, and (b) a Carbon-Neutral World.

- (a) AI offers significant benefits (i.e. data analytics, algorithms, Business Object Document (BOD) coding, and machine learning) to grow and sustain supply chains, but also introduces new cyber vulnerabilities that can be exploited, such as intrusive (ransom) software, which may disrupt supply chains. Globally, the number of organisations impacted by supply chain cyberattacks have surged and *AAG IT Services* reported that since 2001, the victim count has increased from 6 victims per hour to 97 per hour, a 1 517% increase over 20 years. The average cost of data breaches per hour worldwide has also increased. In 2001, the average cost per hour to individuals was \$2 054. Since then, the hourly loss rate has increased to \$787,671 in 2021. The *World Economic Forum* estimated that the cost of cybercrime is forecast to jump to \$23.84tn by 2027, up from \$8.44tn in 2022. Digitalisation and the interconnectedness of supply chains have made them more vulnerable and lucrative targets for cybercriminals.
- (b) The move to a carbon-neutral world drives significant changes in supply chains, requiring investments in renewable energy, new transportation modes (i.e. road, rail, air, and marine), efficiency improvements, and collaborative efforts to reduce emissions. Adverse climatic events across the globe have underscored the urgency of transitioning to sustainable technologies and building resilient infrastructure. The path to a carbon-neutral world is complex and is driven by disruptive innovations and technologies, as well as policy changes. There is also a worldwide increase in consumerism favouring a circular economy, sustainable products, green funding, and carbon border tax mechanisms, which have both short-term compliance and long-term strategic implications for global supply chains. Decarbonisation will become increasingly critical for businesses aiming to navigate this evolving landscape.



The speed and unpredictability of change and making it challenging to plan and respond effectively to these changes.**Salient developments/risks: (a) Lower for longer GDP growth and (b) Global Debt to GDP ratio.**

- (a) Global gross domestic product (GDP) growth is geographically uneven and trending downwards in advanced and emerging economies. *The International Monetary Fund* projected global GDP growth to be around 3.2% in 2024 and 2025 which is consistent with that of 2023, but significantly lower compared to the robust growth of around 6% in 2021. Lower global trade affects supply chains by creating uncertainty, delays, and vulnerabilities. Therefore, organisations must adapt, diversify, and invest strategically to navigate these challenges effectively.
- (b) The rising trend in the global debt-to-GDP ratio poses significant challenges to the sustainability and resilience of supply chains. The ratio has been on an upward trajectory for decades and worsened by the COVID-19 pandemic which caused a significant spike in global debt. The *Institute of International Finance* indicated that the United States holds the highest national debt at \$30.1tn, more than the combined debt of the next four highest-debt nations (i.e. China \$14tn, Japan \$10.2tn, France \$3.1tn, and Italy \$2.9tn). *JP Morgan* reported that China is currently experiencing deflation which, if it persists, could flood global markets with cheaper Chinese products, increasing the risk of a global monetary crisis and recession. On 24 September 2024, the governor of China's central bank, unveiled China's boldest intervention since the COVID-19 pandemic to boost its economy, including reducing mortgage rates for existing homes and reducing the amount of cash commercial banks are required to hold in reserve. The latter is expected to inject about 1tn yuan (A\$210bn) into the financial market by letting banks lend out more. This will further increase China's debt-to-GDP ratio, but however, should counter the risk of deflation in China. For example, the Chinese property giant Evergrande, with a total debt portfolio of ~ \$300bn, has filed for bankruptcy protection in the United States. This move comes as the real estate crisis in China deepens. Filing for Chapter 15 bankruptcy protection in a New York court indicates the prevailing interconnectedness and exposure of the banking sector at a global scale. Evergrande aims to protect its assets while restructuring its debts. Consequently, implicated companies will have to rebalance their financial obligations, and investment needs to ensure the long-term viability of their supply chains.



A lack of clarity and the potential for misinterpretation and are often characterised by unclear information and mixed messages.

Salient developments/risks: (a) Shifting Geopolitical Leadership and (b) Populism and Nationalism.

- (a) 2024 is the biggest election year in human history as half of the world's population (~ 3,7bn people or more than 60 countries) will have their say in local and national elections. Governments that fail to meet their electorates' expectations will be voted out. It is expected that there will be a significant shift in geopolitical leadership or change in governments, potentially giving rise to new bilateral and multilateral trade agreements or countries becoming new members of existing trading blocs (e.g., Iran, Egypt, Ethiopia, and the United Arab Emirates joined BRICS on 01 January 2024) or establishing new trading blocs. These elections have all the ingredients to increase the intensity of the global polycrisis, further disrupting global markets and supply chains.
- (b) Politics based on populism and nationalism has been on the rise in many parts of the world. This trend is evident in countries like the United States, United Kingdom, Brazil, India, and several European and African nations and often emphasises national sovereignty, anti-elitism, and protectionist policies. This normally leads to regulatory uncertainties, trade barriers, and reshoring of factories – challenging the resilience of existing supply chains.



The world is currently going through an unprecedented global crisis, sometimes called a polycrisis and sometimes a permacrisis. Regardless of what it is called, organisational leaders and risk professionals must develop an astute mindset to make sense of this turbulence. The VUCA- or CUVA-model is a pragmatic tool that can be used to make sense of all these moving parts, identify emerging or new risks and in this case, risks threatening international, regional, and local supply chains. The next part of the model considers the collective impact of these risks on South Africa.

5.2. SOUTH AFRICA

Salient developments/risks 1 – (a) GNU Effectiveness and (b) Foreign Policy

- (a) South Africans went to the polls on 29 May 2024 and no party won an outright majority with the African National Congress (ANC) winning most of the support (approximately 40%). President Cyril Ramaphosa (with the consent of the ANC National Executive Committee) formed a Government of National Unity (GNU). Ten political parties joined the GNU and significantly changed the political leadership governing the country. The GNU yielded dialogues and expectations regarding its potential impact on accountability and governance, while it is still early days, there are some green shoots of improvement on these fronts. This should potentially create a conducive environment to counter fraud and corruption in both the public and private sectors, attracting new investments in infrastructure that are vital for the effectiveness of logistics networks.
- (b) It is not certain at this stage whether the GNU may change the country's foreign policy or not, however, the current foreign policy is challenged on several political and social fronts. There is without doubt a shift of global power dynamics between Europe, the United States, India, Russia, and China with numerous indicators signalling a shift in influence regarding economic growth, technology advancements, and military expansions, giving rise to untenable geopolitical tensions. As a member of the BRICS trading block, South Africa is amid these geopolitical tensions and the government's stance on the Russia-Ukraine, Israel-Hamas, and Hezbollah wars have raised concerns with the United States Senate regarding South Africa's continued participation in the African Growth and Opportunity Act (AGOA). SA continues to maintain its stance on neutrality on the Russia-Ukraine war and support for Hamas and Hezbollah; however, the geopolitical implications of this action have put South Africa's AGOA trade benefits at risk. Exports from South Africa to the United States increased from \$2.39bn in 2020 to \$3.61bn in 2022 and is approximately 0,7% of South Africa's annual GDP. These benefits are significant for the country's labour-intensive industries and sectors with high local content and labour-absorptive supply chains, such as mining, car manufacturing, retail, and agriculture. There is also a concern that should Donald Trump win the United States election on 5 November 2024, the consequences may be worse, especially against countries supporting the move away from the dollar as a reserve currency (the South African government is currently supporting this initiative), and that the United States may impose tariffs as high as 100% on these countries' exports to the United States. The United States has also expressed strong disapproval of South Africa's case in the International Court of Justice (ICJ) in December 2023, accusing Israel of committing genocide against Palestinians in Gaza. In January 2024, the ICJ ordered provisional measures, requiring Israel to take steps to prevent acts prohibited under the Genocide Convention and to ensure humanitarian relief in Gaza.



- (a) SA's economic performance over the past decade has been grim (i.e. caused by exogenous and local socio-political factors). The South African Reserve Bank (SARB) reported that GDP growth from 2013 to 2023 averaged around 1.1% per year and is significantly lower than the global average which fluctuates between 2 to 5%. South African corporates are sitting on R1.2tn worth of cash, as many are hesitant to deploy capital into the local economy without policy certainty and improved economic growth. This can be considered as a vote of no confidence by the private sector to invest in the local economy. For the same period, the debt-to-GDP ratio jumped from 45,5% to 72,2% and is still rising. Dawie Roodt, Director and Chief Economist of the Efficient Group in an interview with the *Daily Investor* said that South Africa's debt-to-GDP ratio is growing at an unsustainable rate of 2% to 3% annually and excludes the debt of local authorities (municipalities) and state owned entities. This poses a significant risk to the fiscus (which continuously bails out state owned entities), the capital markets, funding of infrastructure investments, economic growth, and the sustainability of supply chains.

The formation of the GNU has positively influenced South African markets by promoting stability, encouraging investments, and signalling a commitment to economic reforms. It offers hope for a more promising economic growth path. Finance minister Enoch Godongwana reported on 29 June 2024 to the Cabinet that the rand rallied 3.9% against the dollar, the FTE/JSE gained 6.6%, whilst local-currency bonds have rallied remarkably. By way of an example, he also indicated that should the interest rates increase/decrease by 1% and the Rand depreciates/appreciates by R1 against the dollar, South Africa's gross loan debt will increase/decrease by R50.7bn increase/decrease, and debt service cost will increase/decrease by R7.9bn. The current confidence in the markets bodes well for the fiscus, capital markets, and funding of logistics infrastructure but is based on the premise that GNU delivers on its promises.

- (b) The ongoing fiscal consolidation in South Africa, aimed at reducing the national budget deficit, accumulation of debt, and public spending prompted the reduction of investment in infrastructure (including logistics infrastructure for which the state owned entities are accountable). South Africa's sovereign credit ratings by Standard & Poor (BB- with a stable outlook) and Moody's (Ba2 with a stable outlook) remain below investment grade quality and increase the country's borrowing cost. The national debt-service costs are expected to peak as a proportion of total revenue in 2025/26, reaching around 25% and by implication could further reduce investments in infrastructure. More concerning is South Africa's continued greylisting by the Financial Action Task Force (FATF) which increases the cost of both public and private debt as well as the cost of international credit for the country's exports and imports. To compensate for the reduced public sector investments in supply chain infrastructure, the government encourages the private sector to fund and participate in public infrastructure projects but this, together with the greylisting concerns, increases the cost of doing business in South Africa.



- (a) The integration of AI in Information Technology (IT) systems (i.e. data analytics, algorithms, BOD coding, machine learning and other digitalisation efforts) introduces new vulnerabilities such as adversarial attacks, data poisoning, and intelligent infiltration of IT systems, however, offers significant potential for supply chain optimisation. A thoughtful approach, continuous monitoring, and ethical considerations are essential to harness AI effectively while minimising potential adverse effects. History has shown that both the public and private sectors are far from where they should be to effectively deal with these risks.
- (b) Cyberattacks and other cybercrime incidents have significantly impacted governmental departments, provinces, local municipalities, state owned entities, and other state institutions. Most of the cyber incidents target state owned entities. There have been several high-profile cyberattacks, such as the ransomware attack on Transnet in 2021, which disrupted port operations and had a ripple effect on supply chains. Several private companies have also been implicated in cybercrime, affecting their operations and supply chains and is a huge risk to the country. Despite legislative efforts, there are ongoing challenges in building sufficient human and operational capacity to effectively manage cyber threats. These incidents highlight the need for robust cybersecurity measures and continuous investment in technology and training to protect critical infrastructure and institutions. The [Council for Scientific and Industrial Research](#) estimated that the impact of cybercrime on the South African economy is around R2.2bn per year.



- (a) The rampant organised crime in South Africa has increasingly infiltrated the construction industry, giving rise to what is commonly referred to as the “construction mafia.” These groups employ tactics such as extortion, violence, and intimidation to disrupt construction projects, demanding protection payments, and sharing of profits or jobs. Resultantly, projects are abolished, which deteriorates the viability of logistics infrastructure and severely increases social costs. Eliminating this threat is crucial to revitalising South Africa's construction sector. The *World Bank* estimated that the cost of crime (including extortion) for 2023 in South Africa was a staggering R700 bn.
- (b) Corruption continues to undermine both the private and public sectors and is incited by greed, inadequate law enforcement (such as the Prevention and Combating of Corrupt Activities Act, Companies Act, Financial Intelligence Centre Act, Public Finance Management Act), lack of transparency, poor governance, and impunity for wrongdoing. As a result of the lack of enforcing these laws to combat corruption and the questionable performance of the law-enforcing institutions (e.g., National Prosecuting Authority, Special Investigating Unit, and Hawks), the country is still exposed to the rampant plundering of public and private resources. For example, the most recent audit report by the *Auditor-General of South Africa (AGSA)* related to local government audit outcomes for the 2022/23 fiscal year, shows that only 34 out of 257 municipalities received clean audit reports. This means that 13% of municipalities met the required standards for financial and performance management, while a staggering 87% failed the audit criteria for transparency, accountability, and financial discipline. The biggest concern is the dreadful condition of municipalities’ utility infrastructure due to corruption, the unavailability of funding for ongoing maintenance work, and governmental grants not being spent on utility infrastructure which are critical for local supply chains. SA is also ranked 83rd out of 180 countries on the *International Corruption Index*, which does not help to attract foreign or local direct investments in supply chain infrastructure.
- (c) Widespread theft and vandalism have severe consequences for the economy and target logistics infrastructure such as railway lines, phylon lines, electric cables, substations, and telecommunications networks, to steal valuable metals such as steel and copper. The *Economic Sabotage of Critical Infrastructure (ESCI) Forum*, a joint working group between Telkom, Eskom, Prasa and Transnet, has estimated that copper theft costs the country R7bn every year, with a wider economic impact closer to R187bn. This leads to frequent service disruptions and an increase in maintenance costs for logistics service providers. Combatting infrastructure theft and vandalism is essential for South Africa's economic well-being and requires concerted efforts from the government, law enforcement agencies, and communities to protect critical assets.
- (d) Lawlessness (including incidents during service delivery protests and unrest) is problematic, and it is common for communities or instigators to target and destroy public and private property as well as logistics infrastructure. Broken promises by national, provincial, and local governments and politicians together with community disillusionment are the driving forces behind these incidents. Public and private organisations need stability to thrive and when chaos reigns, investors become worried, supply chains are disrupted, and economic growth stumbles. Crime statistics in South Africa are a major concern for supply chains.

Salient developments/risks 5 – (a) Climate Change and (b) Adverse Weather Events

- (a) Climate change has a ruinous impact on Sub-Saharan Africa's ambient temperature (i.e. heatwaves and wildfires), rainfall, water resources (i.e. dams and lakes), crop yields, food security, and the ability to sustainably for countries in the region to grow their economies and supply chains, in order to promote national and regional development initiatives and to reduce poverty and related social challenges.
- (b) Adverse climatic conditions (increasing in frequency and intensity) claimed their toll as coastal areas have endured most of the extreme weather events. Heavy rainfall, landslides, sea storms, and gale-force winds jeopardise coastal infrastructure and properties. In April 2022, KwaZulu-Natal faced devastating floods and landslides due to heavy rainfall culminating in 459 lives lost, 40,000 people displaced, 12,000 houses destroyed, 45,000 people temporarily unemployed. In September 2023, spring tides and gale-force winds along the Western and Eastern Cape coastal lines damaged homes, businesses, and infrastructure and left communities in despair.
- (c) Climate change and adverse weather events have a specific impact on risk management as a value adding organisational activity, as a result of a continually widening protection gap (i.e. the gap between real losses and what can be compensated for in terms of risk financing mechanisms such as traditional insurance and alternative risk financing structures). Because risk management functions don't always work closely with the insurance or risk financing functions in organisations, this often creates a false sense of comfort, while risk financing costs increase without the related benefits when losses do occur. Concerted efforts should be made across organisations and industries to collaborate in the interest of strengthening the benefits of traditional insurance in view of the realities faced by the insurance industry itself.



5.3. STATE OWNED ENTITIES IN SOUTH AFRICA

Eskom and Transnet's service delivery creates the cornerstone for the effective operation of logistics networks and is critical for sustaining and growing the economy. Both these state owned entities were on the brink of collapse and are still having a detrimental impact on the economy. With the establishment of the GNU, Eskom and Transnet moved to the National Energy and Transport Departments respectively, which provides an opportunity to improve their performance. This case study does not cover the South African Airways or water supply infrastructure, although both these services form an integral part of supply chains in the country.

Salient developments/risks 1 – Eskom

Eskom's poor service delivery had an enormous impact on the country's economic growth. The [SARB](#) reported that load-shedding has reduced economic growth in 2023 by around 1.8%. Astonishingly, the bailouts of [R241.6bn](#) that the National Treasury had provided to Eskom from 2008/09 to 2022/23 is significantly higher than its current outstanding debt of approximately R450bn. The total bailouts for cash-strapped state owned entities have cost taxpayers R456.5bn over the past nine financial years, and the National Treasury reported that by the end of March 2025, it is set to rise to R520.6bn. The scars left behind by state capture, COVID-19, and Eskom loadshedding on the country are mentally and emotionally too overwhelming to comprehend fully. The recurring and unpredictable power outages have disrupted the operations of logistics companies and include delays in transportation schedules, warehouse operations, and overall supply chain management. Logistics companies have had to invest in backup power solutions, such as generators, to maintain operations during load-shedding. This has increased operational costs and reduced profit margins.

The National Energy Crisis Committee (NECOM) together with other state interventions (i.e. appointment of a Minister of Electricity and Energy, a new Eskom Board and Chief Executive Officer, the Energy Regulation Amendment Bill,) have played a crucial role in addressing Eskom's challenges and improving its performance. The combined interventions of NECOM (involving an Inter-Ministerial Committee, Eskom, and the Private Sector) focus on recovering Eskom's operations (i.e. the power generation fleet), encouraging private investment in new generation capacity (including renewable energy), as well as rooftop solar expansion and transforming the electricity sector to achieve long-term energy security, have steadied the ship. The Minister of Electricity and Energy reported that for financial year-to-date (from 01 April 2024 to 10 October 2024) Eskom's Energy Availability Factor (EAF) increased to 63.1%, which is a significant improvement of 7.7% compared to the same period last year. At the time, the country did not suffer load shedding for 200 consecutive days, and having last implemented rolling power cuts on 26 March 2024. The Minister also said that he is confident that Eskom would reach its 70% EAF target in 2025, which is the benchmark for eliminating load-shedding.

Even with the progress made by Eskom to date, the country is still facing major challenges related to the transmission and distribution of electricity, which in turn impact the logistics networks. These challenges require significant investment in upgrading the transmission and distribution infrastructure, improving maintenance practices, and ensuring financial stability for Eskom. This includes the distribution infrastructure that is owned and operated by municipalities.

Transnet's value chains are vast and spread across a complex configuration of rail corridors, pipelines, port terminals, and port infrastructure, but have been performing dismally for a number of years already – with commensurate negative implications for South Africa's economy. *BDO SA* on 6 October 2023 estimated that the collective cost of port and rail failures over the last 18 months is in the region of R150 bn and that the collapse of Transnet is set to cost the country R1 bn a day in economic output, the equivalent of 4.9% of our country's annual GDP or R353 bn. This resulted in unprecedented import and export delays, significantly eroding of foreign earnings, which are desperately needed to address inequality, poverty, and unemployment. The main sectors impacted are mining, manufacturing, retail, and agriculture, and this increases the risk of mass unemployment, especially in the mining sector, should Transnet not be turned around urgently.

The reasons for the dismal performance are multifaceted, namely: inadequate leadership, governance failures, aging infrastructure, labour strikes, organised crime, theft, vandalism, financial constraints, extreme weather, and other external factors. A National Logistics Crisis Committee was established to address the significant challenges facing the logistics sector, particularly rail, port, and road networks. The Committee (involving an Inter-Ministerial Committee, Transnet, leading Chief Executive Officers, and Logistics Experts) aims to implement both urgent interventions and long-term reforms to improve operational performance and enable private sector participation in these networks. This includes immediate maintenance backlogs, cable theft, operational inefficiencies, opening rail and port networks to private operators, and other structural changes, creating a conducive environment for sustainable logistics operations. Subsequently, a new Transnet board and Chief Executive Officer has been appointed and the President has signed into law the Regulation of Transport Act 6 of 2024, which marks a new era towards rail reform and the economic regulation of transport. Transnet's recent performance has shown some signs of improvement but remains a challenge.



PWC reported in its latest *South African Economic Outlook* report on 28 August 2024 that the collaboration between organised business and government, known as the Joint Steering Oversight Committee, was launched in the second quarter of 2023 and has resulted in around 350 specialists being deployed to assist in initiatives around load shedding, transport and logistics, as well as crime and corruption. This Joint Steering Oversight Committee is an exemplary example of how collaboration in the interest of South Africa as a whole, can contribute to better outcomes, not only for individual organisations, but for society at large.

Some of the milestones achieved by March 2024 included a 61% year-on-year decline in load-shedding from December 2023 to February 2024. There was also a 36% decline in waiting time to anchor vessels in the Port of Durban and 45% fewer vessels anchored outside the harbours. Both Eskom and Transnet have highly geared balance sheets (joint debt is approximately R600 bn) and are limiting capital expenditure for maintenance and equipment renewals due to excessive debt servicing obligations. The challenge lies in striking a balance between debt management and essential infrastructure investment. This is one of many reasons why Eskom (to a lesser extent given its current performance) and Transnet are persistently underperforming and slowing down the transportation of freight, negatively impacting the country's imports and exports. This forced the private sector to divert some of its freight via alternative rail and road corridors, and ports such as Walvis Bay and Maputo. Walvis Bay is an efficient port located on the Atlantic coast, and is a well-connected gateway to global markets. Maputo is close to South Africa and connected to rail corridors extending into South Africa and these ports are increasingly competing with the ports of Cape Town, Richards Bay and Durban for cargo imports and exports. The knock-on effects on road, rail, and pipeline transportation and the ports are staggering and erode South Africa's ability to compete and earn foreign currency.



5.4. SOUTH AFRICA'S LOGISTICS NETWORKS

Salient developments/risks 1 – Road Transport

Transnet Freight Rail (TFR) inefficiencies resulted in a significant loss of freight volumes to road transport. TFR reported that its rail-based freight dropped consecutively in 2021 (183,29Mt), 2022 (172,65Mt) and 2023 (149,49Mt), however, has improved in the 2024 FY to 151,70Mt but is significantly lower than the 220Mt of freight moved six years ago. This resulted in a substantial increase in road cargo, extensive traffic congestion on the national highways (i.e. N2 and N3) and secondary roads servicing the ports (i.e. Richards Bay and Durban ports), increasing wear and tear of the road surfaces, running cost of trucks, and environmental pollution due to excessive emissions. The country has seen a substantial increase in fatal cargo accidents and numerous communities protesting cargo moving through their cities or towns. Truck hijackings, cargo theft, security measures, and trucks set alight during community unrests, account for a considerable proportion of logistics costs.

The trucking industry has grown vastly and with TFR being determined to win back its lost freight volumes, will be challenged, as trucking lobbyist will do everything possible to protect their sector. South Africa's national road infrastructure was not designed for the excessive increase in road cargo and is damaging road surfaces to a point of no return (i.e. it cannot be repaired) and will have to be rebuilt entirely. Currently, the National Treasury is focussing on consolidating the fiscus (national budget) and it will take a long time to repair or rebuild road infrastructure. The increase in the frequency and severity of climatic events (e.g. flooding in KwaZulu-Natal and Western Cape) together with poorly maintained roads, increase the risk of ruining the national and secondary road infrastructure irreparably.

Salient developments/risks 2 – Rail Transport

TFR plays a pivotal role in preserving South Africa's rail infrastructure, however, several challenges are impeding its role, specifically ongoing cable theft and vandalism along its rail corridors, loss of freight volumes to road transport, ageing infrastructure, maintenance backlogs, as well as shortage of locomotives and rolling stock. The impasse with China Railway Construction Company (CRCC) refusing to supply critical spares for the locomotives (450 in total) TFR bought from CRCC has not been resolved and is the main reason for the shortage of locomotives. At the time of writing, 164 (36%) electric locomotives could not return to service because of the unavailability of critical spares.

The impasse has a devastating impact on the mining sector and the *Mineral Council of South Africa* reported that rail transport interruptions, port delays, and breakdowns, have made it difficult for mining companies to operate efficiently. This also increases the risk of mass retrenchments and erodes the viability of the mining sector. The agriculture sector is experiencing the same problems and as a labour-intensive sector is having a direct impact on the economic stability of rural towns which are already suffering extremely high unemployment. Delays in rail transport can lead to spoilage of perishable agricultural goods, affecting export quality and reliability. TFR is making inroads in seeking solutions for the shortage of locomotive spares, collaborating with original equipment manufacturers to manage the shortage of critical spares. These inefficiencies increase logistics costs and make South African goods less competitive in the global markets.

Transnet recently reported that it has secured a R5 bn loan from the New Development Bank, previously known as the BRICS Development Bank, which will be used for investments that are crucial for TFR to enhance its operational capabilities. The loan will be allocated towards a comprehensive modernisation program, including upgrading rail network infrastructure, overhauling locomotives, and renewing the tanker/wagon fleets. TFR is also actively promoting concessions to allow the private sector to rent rail facilities and improve rail services.

Salient developments/risks 3 – National Ports

The national ports managed by Transnet National Ports Authorities (TNPA) play a decisive role in growing the economy, serving as gateways for imports and exports, however, their performance has been a topic of scrutiny, both locally and globally. The *World Bank's Container Port Performance Index* ranks Durban (SA's biggest port) at a concerning 341st out of 348 ports globally. The Port of Cape Town follows closely behind, ranked 347th. Inadequate leadership, poor maintenance, underinvestment in equipment, and adverse weather caused extensive congestion and delays at ports. International shipping lines no longer view South Africa's biggest ports (i.e. ports of Richards Bay, Durban, and Cape Town) as major ports of call. Even so, the attacks on ships in the Red Sea by Yemen's Houthi militants have reduced the shipping transits through the Suez Canal, which is the shortest maritime route between Asia and Europe. As a result, many shipping companies have diverted their ships around the Cape of Good Hope and benefited Durban, Cape Town, and Gqeberha ports as the increasing shipping traffic made more use of these ports for fuelling and bunkering services which are valued sources of revenue in a time when it is most needed.

TNPA has made significant investments of approximately R2.5 bn in the acquisition and maintenance of port equipment and infrastructure, including cranes, helicopters, tugs, dredgers, and straddle carriers. This should improve service delivery and address the congestion the ports are currently experiencing. Priority programs focus on terminals, infrastructure, systems, sustainability, and the environment. TNPA is actively engaging with private investors to enhance its port infrastructure and create Public Private Partnerships.

Salient developments/risks 4 – National Pipelines

Transnet Pipelines owns and manages over 3 000 kilometres of pipelines and storage facilities which are used to transport crude oil, kerosene, petrol, and diesel. The petroleum liquid fuels pipeline network spans several provinces, including KwaZulu-Natal, Free State, Gauteng, Northwest, and Mpumalanga whilst the gas pipeline runs from Secunda to Durban via Empangeni, with take-off points at Newcastle and Richards Bay. Fuel theft and criminal activities along petroleum pipelines regularly disrupt the flow of crude oil to the Natref refinery and petroleum products (i.e. kerosene, diesel and petrol) to the inland storage facilities and affect supply chains and broader society. The single buoy mooring for crude oil off the coast of Durban is an essential part of South Africa's petroleum supply chain and is exposed to the increase in adverse climatic conditions disrupting shipping schedules and the flow of crude oil as well as petroleum products.

Salient developments/risks 5 – International Shipping Lines

TNPA plays a crucial role in managing the ports of the country and currently, its poor service delivery directly affects shipping line services such as vessel berthing, cargo handling, and turnaround times. Port congestions are prevalent and interrupt shipping schedules, cargo flows, and overall operational efficiencies and increase demurrage costs. This also discourages international and local shipping lines from expanding services or investing in SA ports.

5.5. ECONOMIC GROWTH

Salient Consequences 1 – (a) Inequality, (b) Poverty, and (c) Unemployment

- (a) *ISS African Futures* reported that South Africa has an abundance of well-crafted plans and strategies, but the lack of implementation and accountability continues to hamper economic growth and the ability to address inequality, poverty, and unemployment. The Deputy President said in a speech at the University of Johannesburg on 26 July 2024, “Our nation possesses sound policies, but we struggle with execution due to a deficiency in accountability.” For the GNU to succeed, it must ensure that policies are not just formulated but meticulously implemented, particularly in critical sectors like infrastructure.
- (b) South Africa is the most unequal country in the world and globally recorded the highest Gini coefficient, which is used as a baseline, measuring the level of income inequality in a country (as of July 2024, the Gini coefficient was 0.63). *ISS African Futures* projected that the percentage of South Africans living below the upper-middle-income poverty line of US\$6.85 per day is forecast to remain at this level through 2029. Almost 25.2% of South Africa's population lives below this line, which translates to around 13.8mn people. Together with the remnants of state capture, rampant corruption, fraud, and inadequate state owned entity service delivery have further weakened the country's capability to reduce poverty.
- (c) The *Quarterly Labour Force Survey* showed that the unemployment rate increased by 0.6% from 32.9% in the first quarter of 2024 to 33.5% in the 2nd quarter of 2024. More worryingly, the *Chief Economist of the Mineral Council of South Africa* reported that the expanded unemployment rate, which includes discouraged work seekers, increased further from 41.9% in the 1st quarter of 2024 to 42.6% in the 2nd quarter, following nine consecutive quarterly decreases up to the 4th quarter of 2023. This dilemma is further aggravated by the number of people receiving grants whilst the number of taxpayers is dwindling. The *South African Social Security Agency's* annual report for the 2023/24 fiscal year revealed that it pays grants to 28mn South Africans. In turn, the National Treasury's 2024 Budget Review shows that 7.4mn individuals in South Africa pay income tax. The President said in July 2024 that the government plans to use the SRD grant as the basis for some form of a Basic Income Grant, which will increase the pressure on the Fiscus.

Salient consequences 2 – Supply Chains

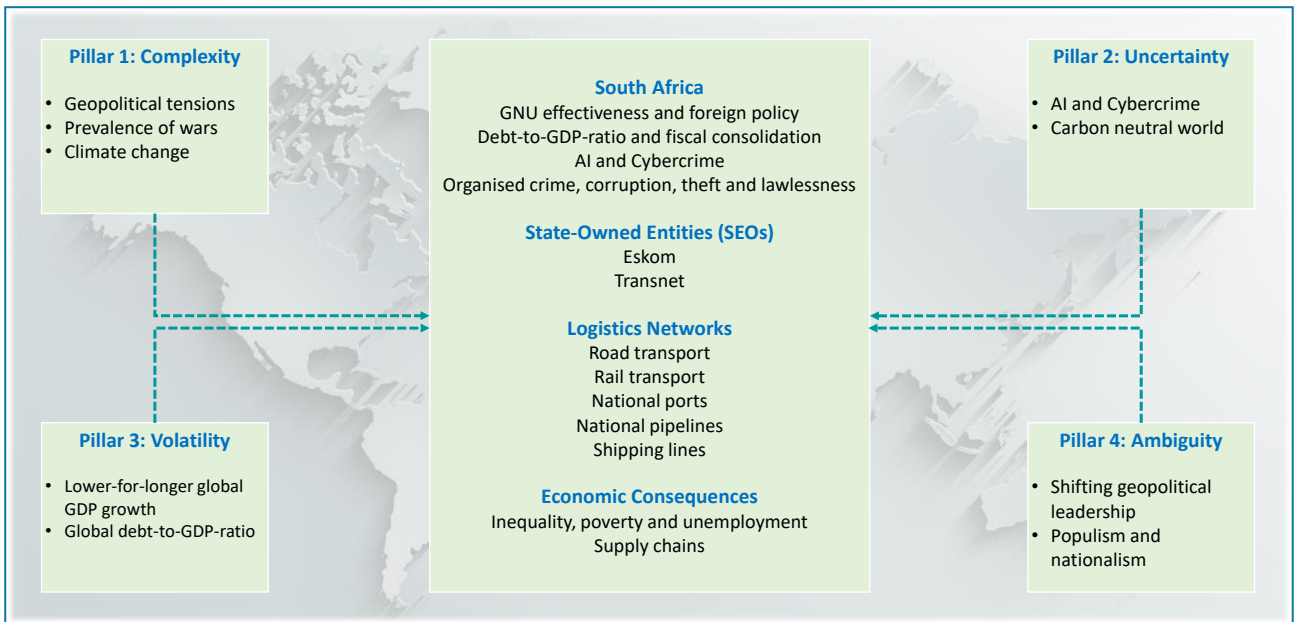
The supply chain sectors in South Africa are on the verge of experiencing a substantive influx of capital investments, given the joint effort by the government and the private sector, which is testament to the noticeable progress made by Operation Vulindlela, NECOM, NLCC and JSOC to turn around Eskom and Transnet.

6. CONCLUSION

The world is constantly in flux, and business leaders must be resilient and have an astute mindset to deal with its volatility, uncertainty, complexity, and ambiguity in creating, sustaining, or realising value for their organisations. COVID-19, the surge in global debt, inflation and interest rate hikes last experienced in the 1970s, and the incessant geopolitical conflicts have unsettled global, regional, and local supply chains. During the same time, SA experienced the aftermath of state capture, rampant organised crime, socio-political and socio-economic shocks, along with the near collapse of two of the

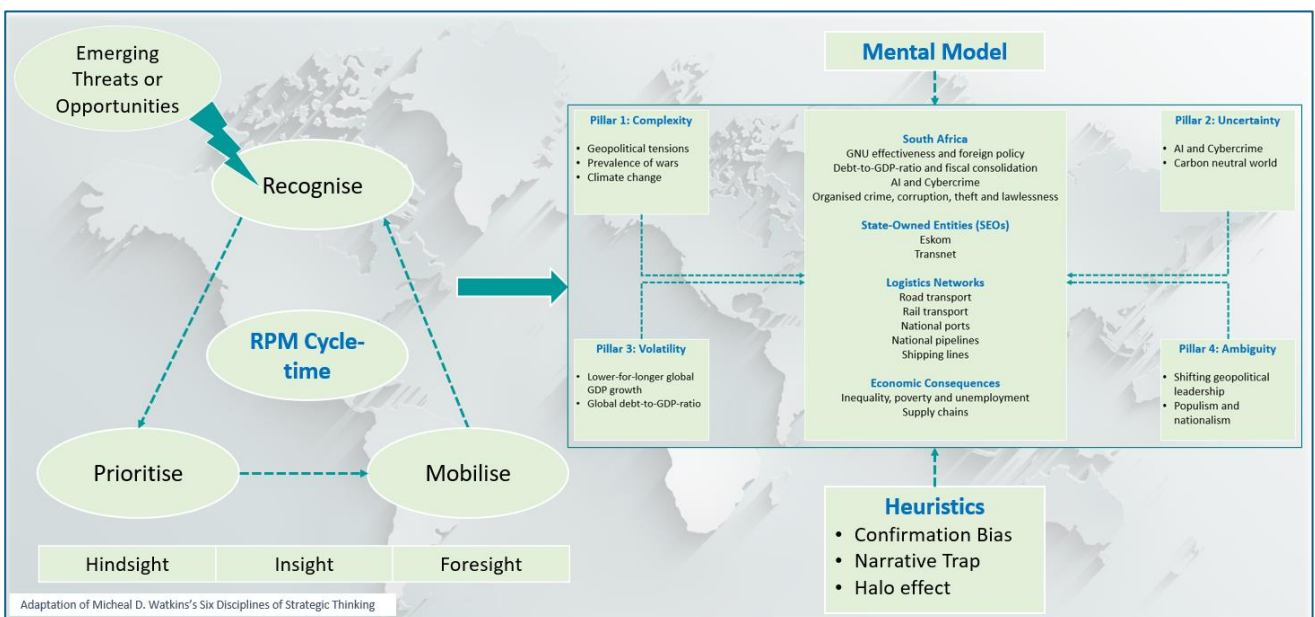
most important state-owned entities (i.e. Eskom and Transnet). These developments are having far-reaching impacts on infrastructure investments, economic growth, reducing inequality, poverty, unemployment, and organised crime in the country. Eskom and Transnet are pivotal entities supporting economic growth and the effectiveness of the SAs logistics networks. Risk Practitioners in South Africa should develop their own mental models that include their organisations, industries, national, regional, and global influences, as per the approach used for this case study.

Figure 1



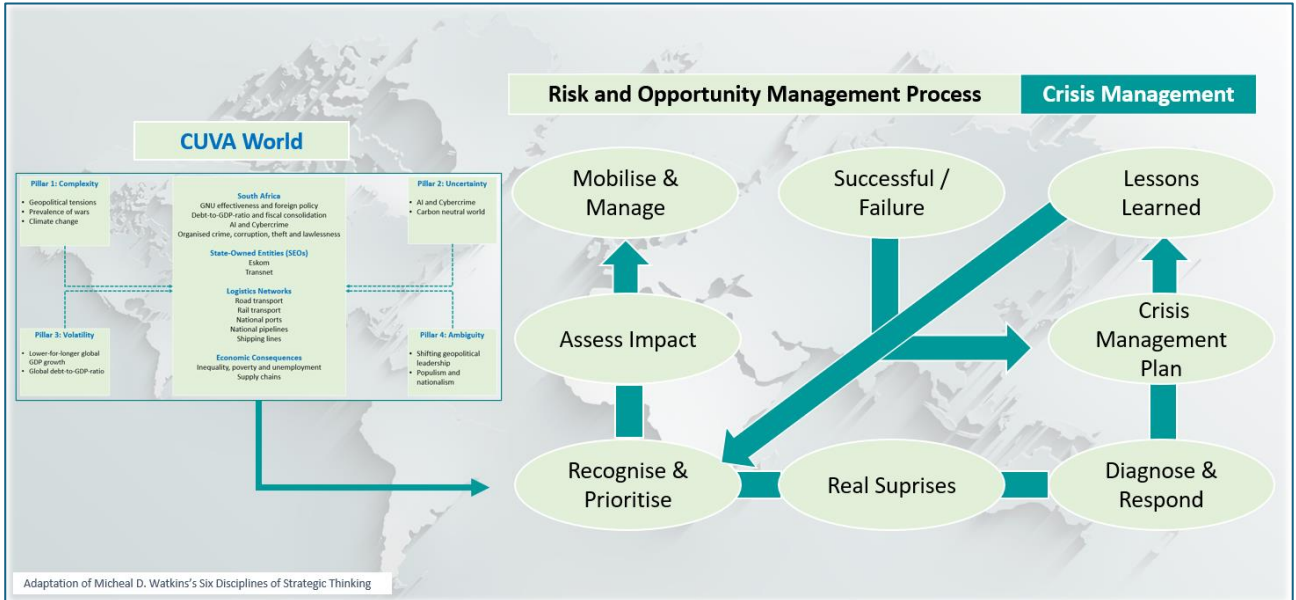
These mental models should become integral parts of the risk management processes within organisations as well as in collaborative engagements across organisational and industry platforms. Figure 2, depicts the incorporation of external patterns that should inform the mental models of risk practitioners and the risk management process for all organisations:

Figure 2



Integrating the outcomes of pattern recognition into the CUVA-model to inform risk and opportunity management processes (as well as crisis management processes) is depicted graphically in **Figure 3**.

Figure 3



It is hoped that the methodology, approach, and information contained in this case study will demonstrate the value of integrated thinking to enhance the practical value add of the risk management process not only to individual organisations, but to the economy of South Africa, and hence to broader society.



7. GLOSSARY OF TERMS AND ABBREVIATIONS

Abbreviation/Term	Description
AGOA	African Growth and Opportunity Act
ANC	African National Congress
AI	Artificial Intelligence
bn	Billion
BOD-coding	Business Object Document Coding
BRICS	The Brazil, Russia, India, China, South Africa Intergovernmental Organisation
CRCC	China Railway Construction Company
CUVA	Complex, Uncertain, Volatile, Ambiguous Complexity, Uncertainty, Volatility, Ambiguity
EAF	Electricity Availability Factor
FATF	Financial Action Task Force
GDP	Gross Domestic Product
GNU	Government of National Unity
GPI	Global Peace Institute
ICJ	International Court of Justice
IT	Information Technology
Mn	Million
Mt	Million tonnes
NATO	North Atlantic Trade Organisation
NECOM	National Energy Crisis Committee
Permacrisis	Societal instability, insecurity, and catastrophes spiralling together.
Polycrisis	Combined impact of climate change, biodiversity loss, inequality, political instability, and more.
Risk	An uncertain future event that could impact an entity's objectives
SARB	South African Reserve Bank
TFR	Transnet Freight Rail
TNPA	Transnet National Ports Authorities
Tn	Trillion
VUCA	Volatile, Uncertain, Complex Ambiguous Volatility Uncertainty Complexity Ambiguity

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