

iNFRASTRUCTURE South Africa

WESTERN CAPE INFRASTRUCTURE SUMMIT

Economic and Infrastructure Profile Presentation

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ISA Centre of Excellence

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OUTLINE



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ECONOMIC AND INFRASTRUCTURE OVERVIEW

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INFRASTRUCTURE SCENARIOS



A photograph of a construction site featuring several tall, cylindrical structures under construction. Each structure is encased in a complex network of red metal scaffolding. The structures are arranged in a row, receding into the distance. The ground is a mix of dirt and concrete, with a shallow, reflective pool of water in the foreground. A large, semi-transparent teal shape is overlaid on the right side of the image, containing the text. The sky is a clear, pale blue.

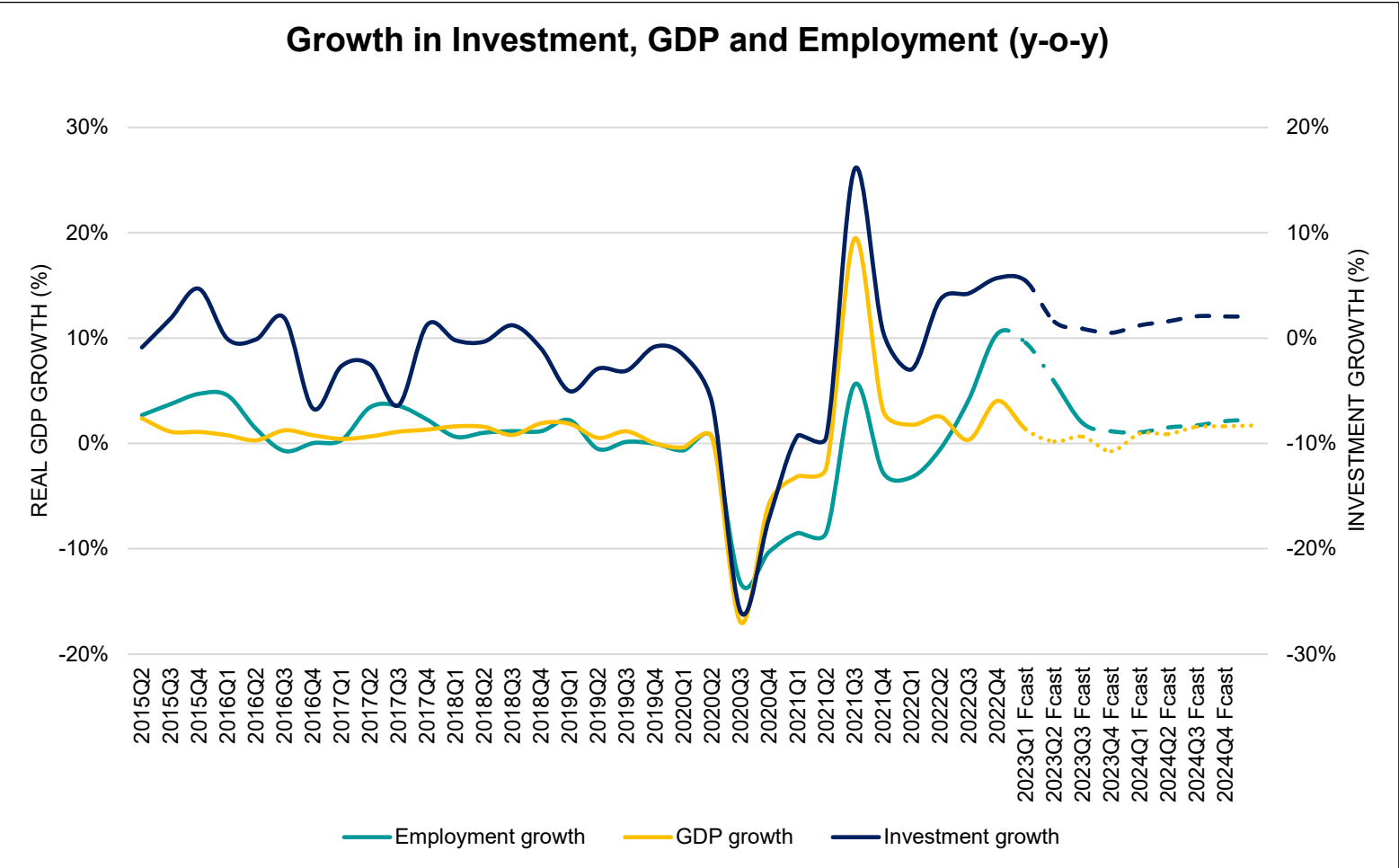
Economic and Infrastructure Overview

ECONOMIC AND INFRASTRUCTURE OVERVIEW

INVESTMENT, GDP AND EMPLOYMENT TRENDS IN SOUTH AFRICA



Growth in Investment, GDP and Employment (y-o-y)



During 2022 Gross fixed capital formation (GFCF) as a percentage of GDP was at **14.45%** in Quarter 2 - **NDP 2030** Target is **30%**

GFCF increased by **1,3% (q-o-q)** in the fourth quarter (Stats SA, 2022)

Correlation between growth in Investment, GDP and Employment:

- **Investment** in infrastructure creates an **enabling environment** for economic growth
- Economic growth encourages **overall employment growth** across the economy
- Employment growth **unlocks labour absorption** for various skills levels

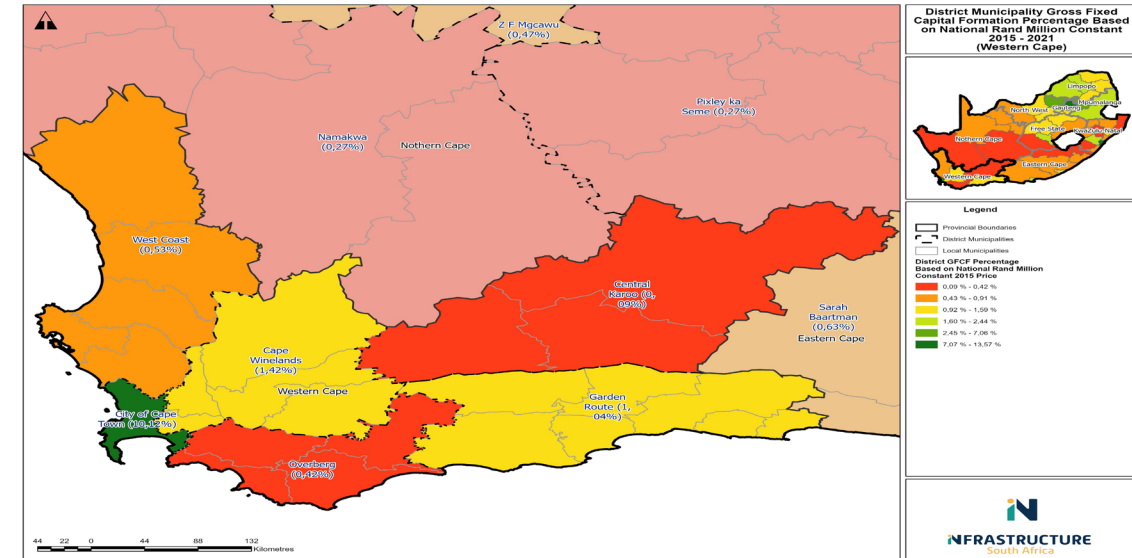
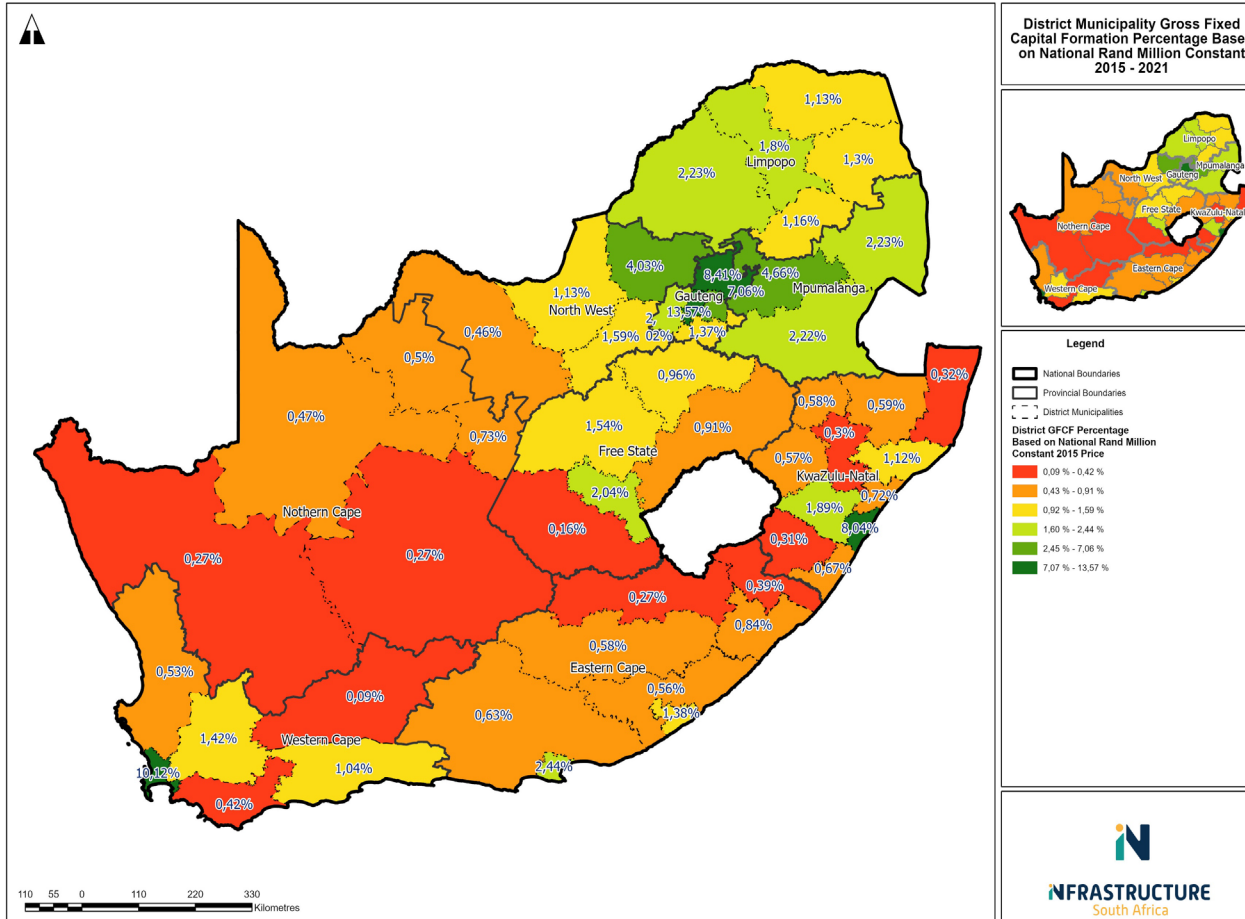
Source: Statistics South Africa; Bureau of Economic Research

ECONOMIC AND INFRASTRUCTURE OVERVIEW

MEASURING INFRASTRUCTURE PERFORMANCE – GFCF AND SPATIAL DISPARITIES



GFCF for at District Level – % Share



Source: Infrastructure South Africa and Quantec

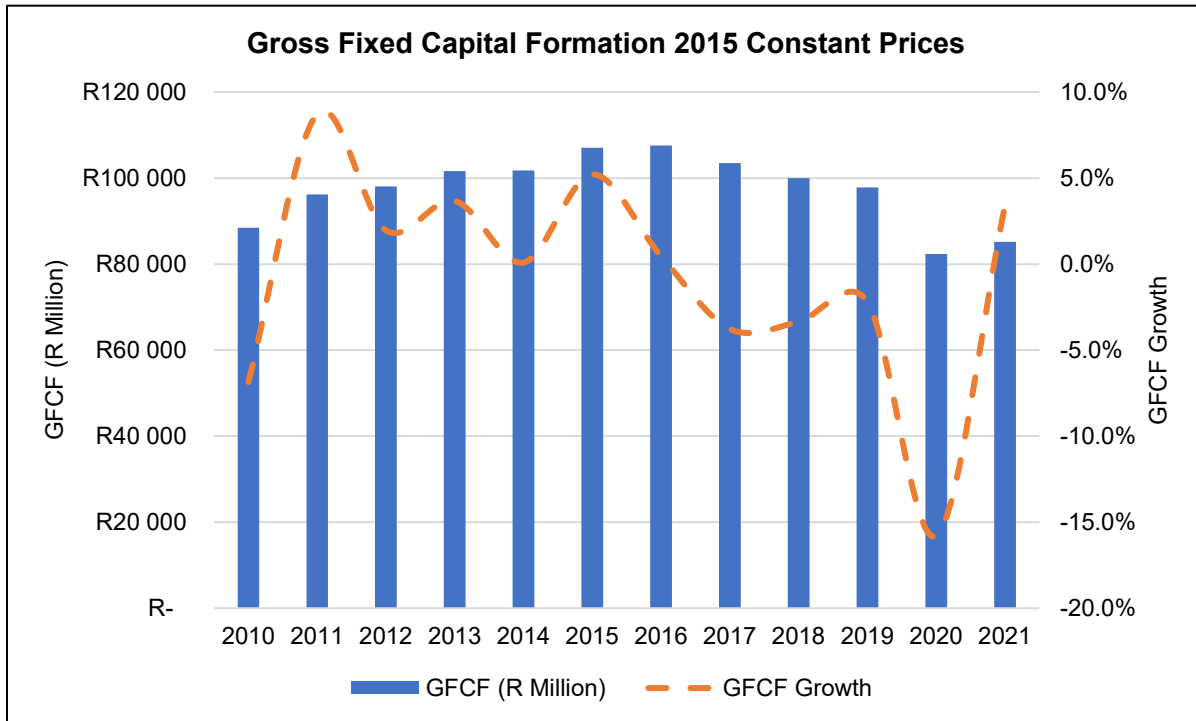
- Capital formation is crucial for **creating an enabling environment** within the region
- Potential to **unlock latent economic growth**, which can **unlock employment opportunities**
- Spatial Disparities quite evident in the Western Cape Province
- **City of Cape Town** received the bulk of the GFCF in WC.

Source: Infrastructure South Africa and Quantec

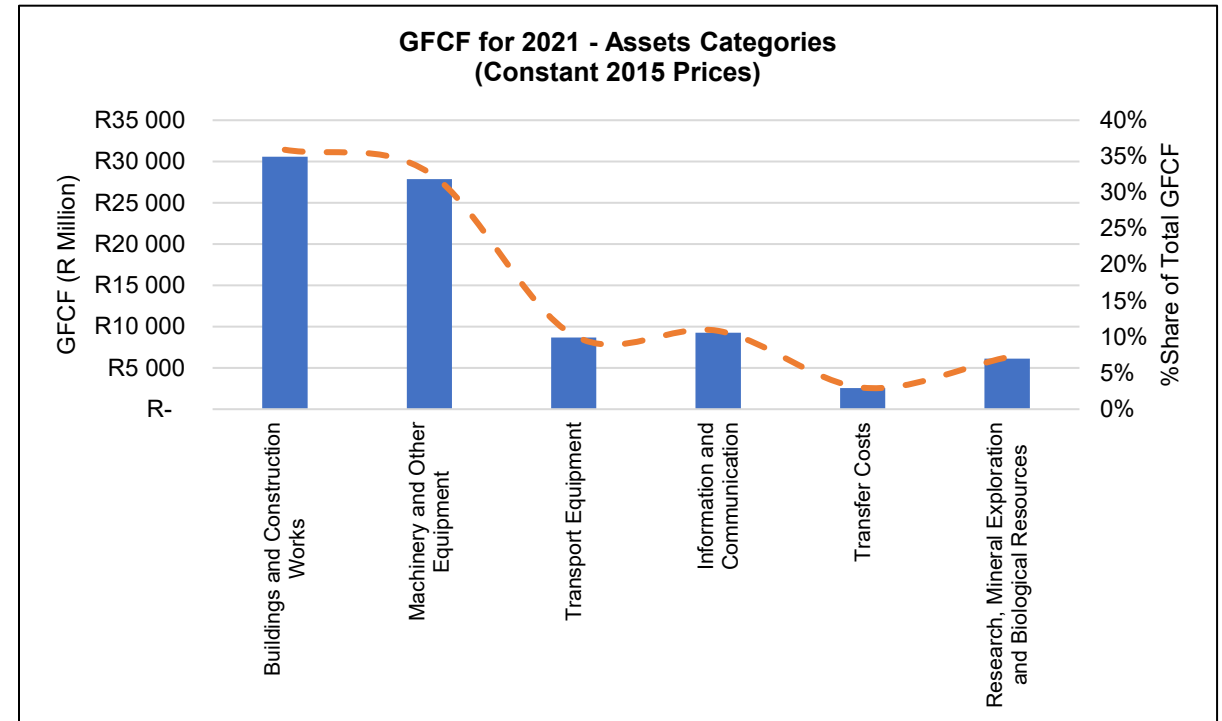
ECONOMIC AND INFRASTRUCTURE OVERVIEW



GROSS FIXED CAPITAL FORMATION – WESTERN CAPE PROVINCE



Source: Quantec

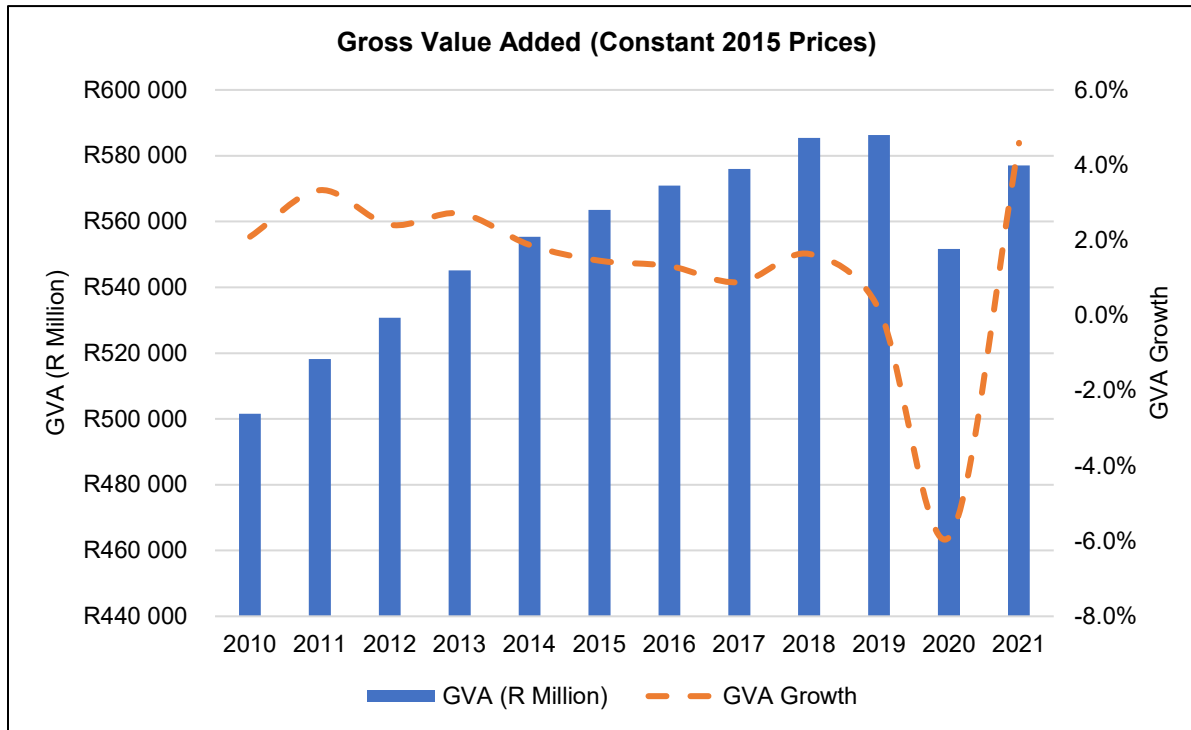


Source: Quantec

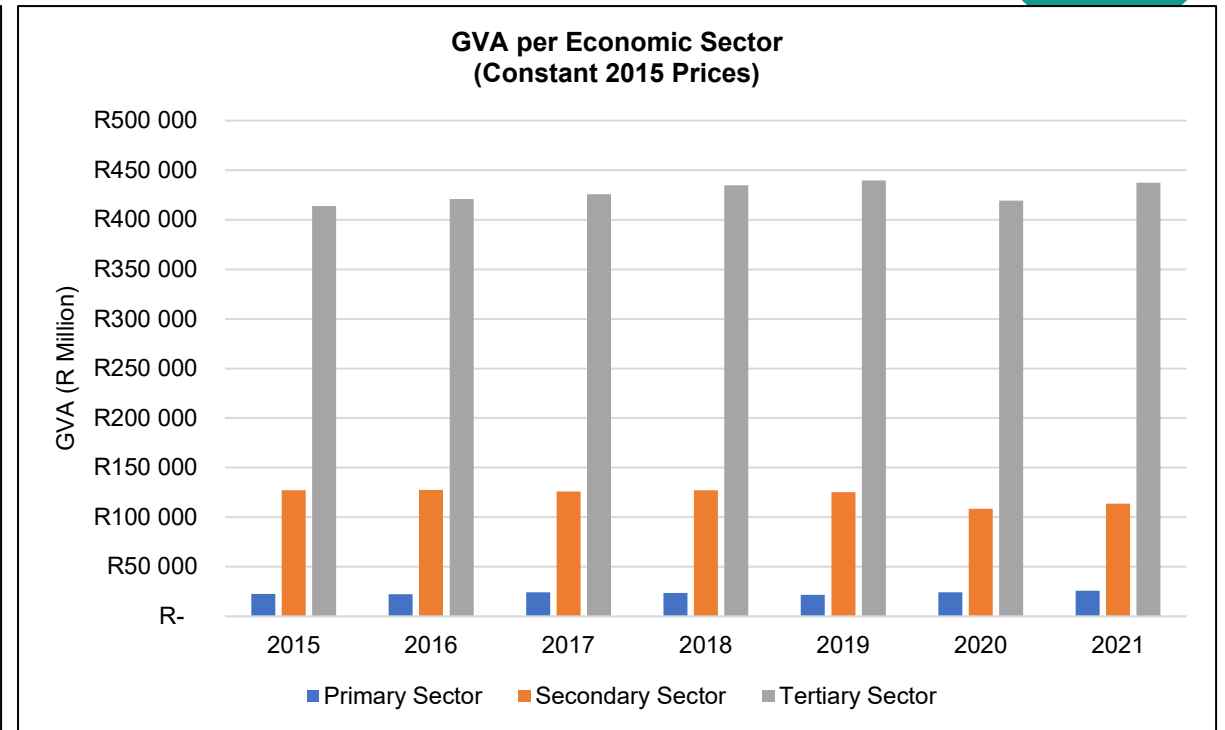
Gross Fixed Capital Formation comprises fixed asset acquisitions minus disposals by resident producers in an economy. There are various asset categories. Western Cape Province had a Gross Fixed Capital Formation (GFCF) of around **R85,16 billion** in 2021. The percentage share was about **13.4%** of GFCF in the country (*third highest among provinces*).

ECONOMIC AND INFRASTRUCTURE OVERVIEW

GROSS VALUE ADDED (GVA) – WESTERN CAPE PROVINCE



Source: Quantec

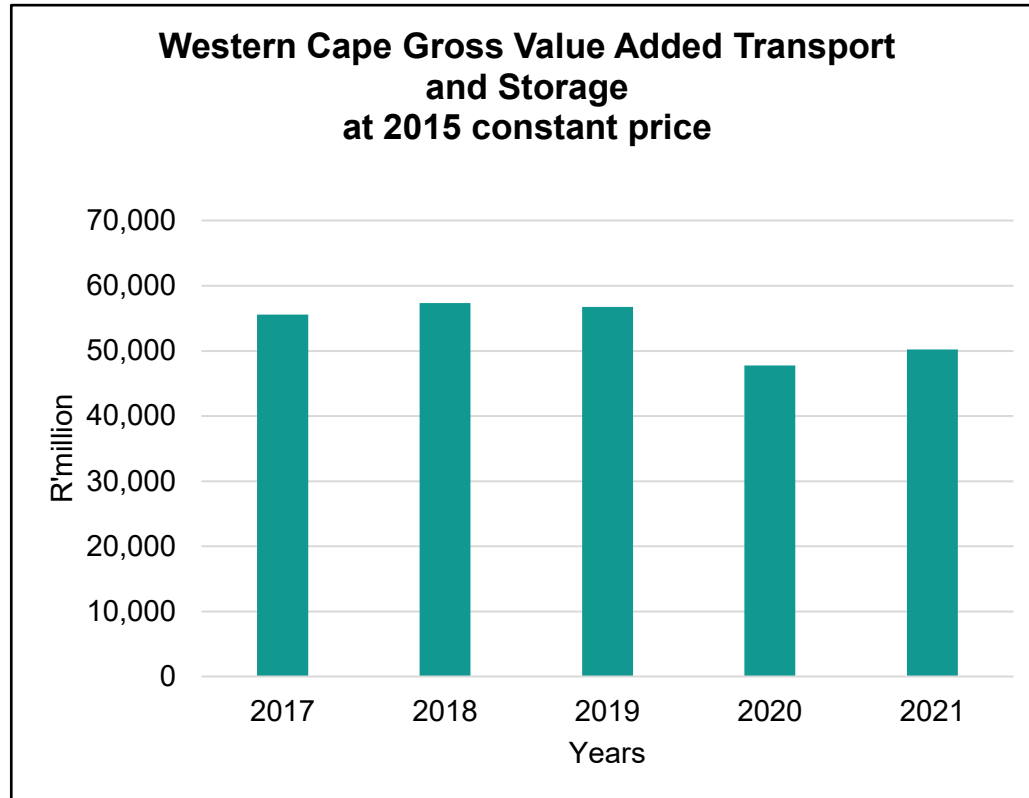


Source: Quantec

Western Cape Province's GVA was mostly from the **tertiary sector**, accounting for about **76%** of total GVA in 2021. The **primary sector** contributed around **4%**, while the **secondary sector** accounted for almost **20%** in the same period. **The financial services industry contributed 32% to total GVA**, the highest among the sectors, followed by the **wholesale and trade industry** as well as the **manufacturing industry** contributing **14% respectively**. City of Cape Town is the highest contributor to the total GVA of the province (72,5%).

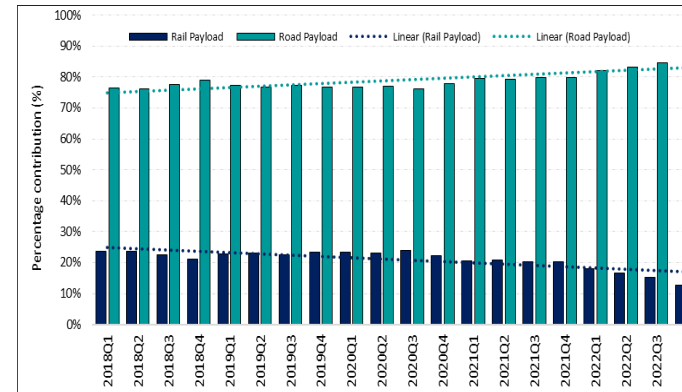
ECONOMIC AND INFRASTRUCTURE OVERVIEW

GROSS VALUE ADDED (GVA) – WESTERN CAPE TRANSPORT



Source: Quantec

The GVA for Transport is shown in the figure above, showing the growth in overall output. In 2021, GVA was about R50 billion, having increased from about R47 billion in 2020.



Rail demand continues to decrease and demand of land transport increase despite lower cost of rail in 2022Q4.

2022Q4 versus 2022Q3

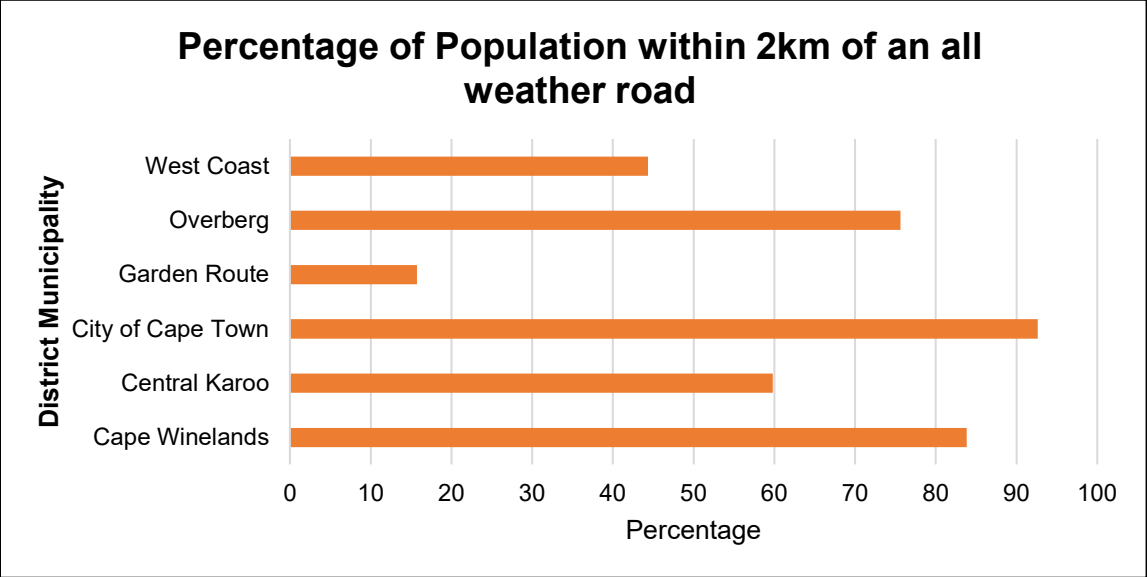
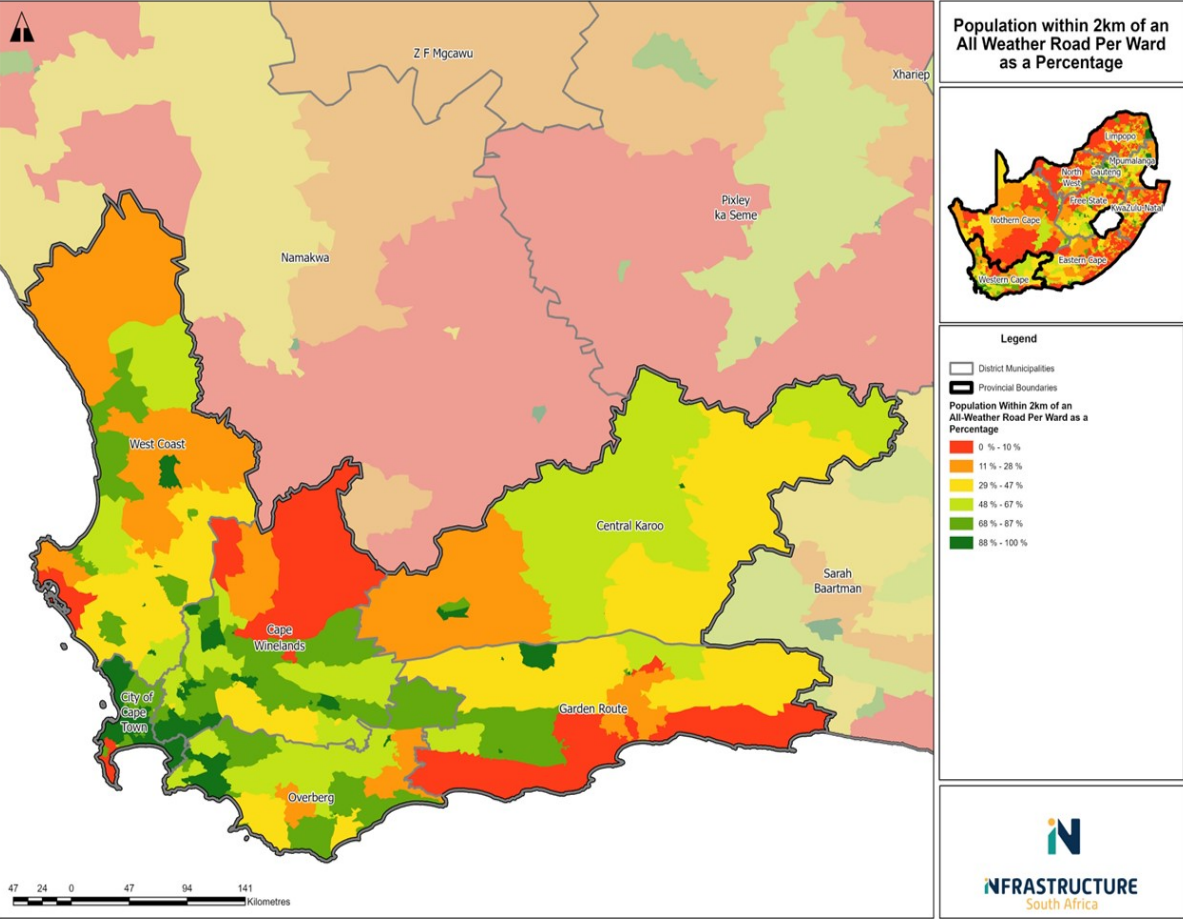
Real cost of rail decreased to R186.1 per ton in 2022Q4 (R197.2 previous quarter)

2022Q4 versus 2022Q3

Real cost of land transport decreased to R197.3 per ton (R200.6 previous quarter)

ECONOMIC AND INFRASTRUCTURE OVERVIEW

WESTERN CAPE - ROAD ACCESS INDEX



Source: Infrastructure South Africa

The **more urbanized provinces** such as Gauteng and Western Cape **have the best access**, whilst the rural provinces such as KwaZulu-Natal and the Eastern Cape have the lowest RAI level.

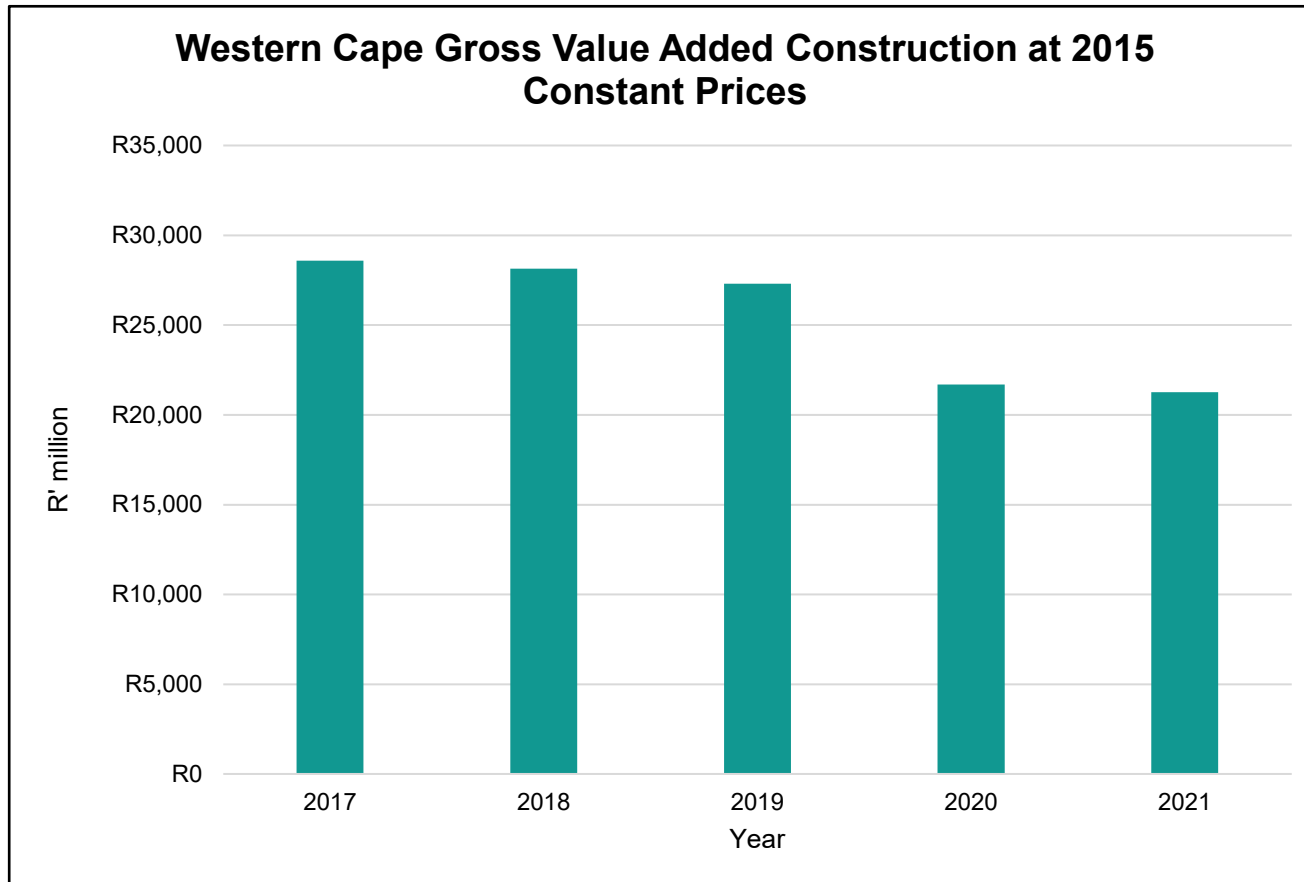
Among the districts in the Western Cape, **Garden Route shows significant access gaps** as illustrated in the figure followed by West Coast and Central Karoo districts. The **highest level of access** is in the **City of Cape Town** with over 90% access.

Source: Infrastructure South Africa and Quantec

ECONOMIC AND INFRASTRUCTURE OVERVIEW



GROSS VALUE ADDED (GVA) – WESTERN CAPE CONSTRUCTION



Source: Quantec

Construction

According to CIDB provincial overview of the construction industry shows that construction output/value-added and concentrated is driven by the following provinces;

- 25% in Gauteng
- 19% in KwaZulu Natal
- 18% in Western Cape
- 12% in Eastern Cape

A decline in 2020 due to Covid-19 lockdown restrictions

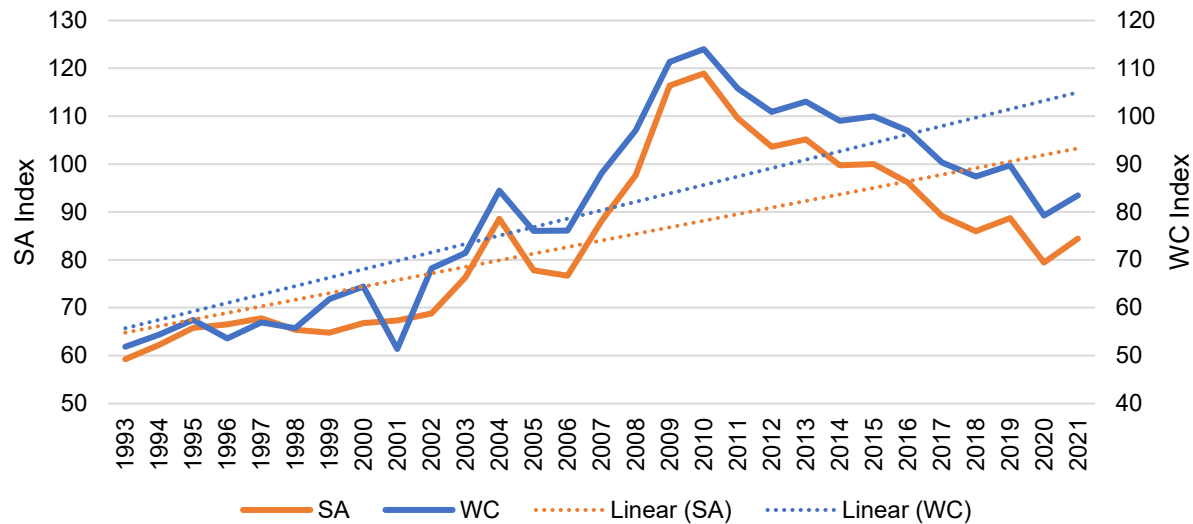
Source: CIDB

ECONOMIC AND INFRASTRUCTURE OVERVIEW

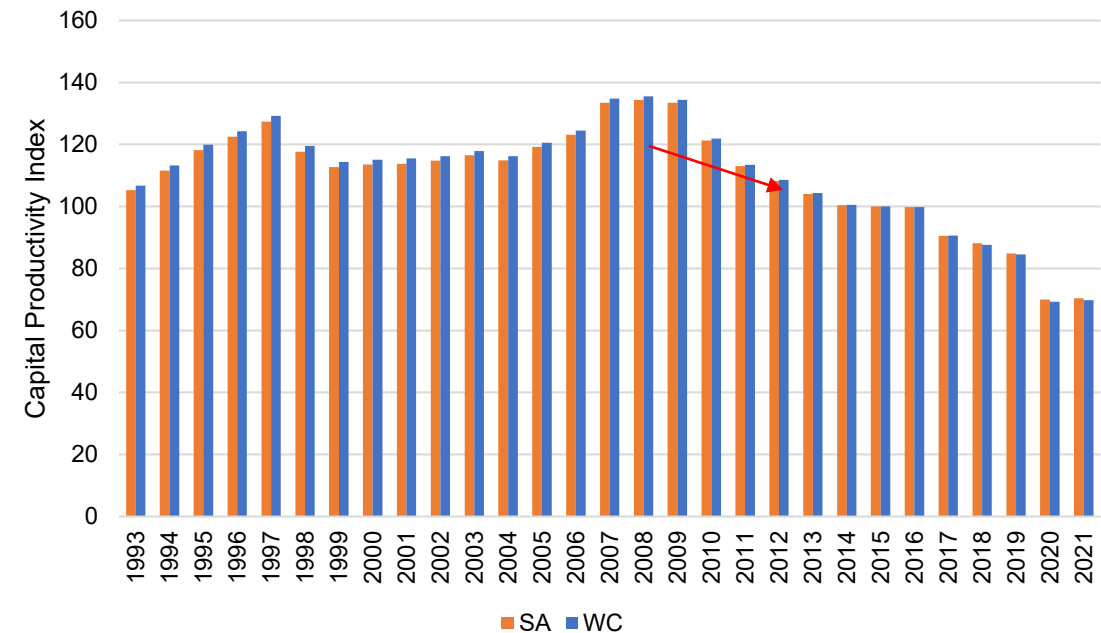


CONSTRUCTION SECTOR PRODUCTIVITY INDEX – SOUTH AFRICA versus WESTERN CAPE

Construction Labour Productivity (2015 = 100)



Capital Productivity Index (2015 = 100)



- Since 2003, labour productivity in the construction sector in SA and the WC co-trend.
- However, labour productivity has fallen below the long-term trend since 2015.
- In 2021, productivity has recovered from the Covid-19 pandemic but not to pre-pandemic levels.
- This “recovery” is also from a low-base effect.

- Capital productivity in the construction sector for SA and the WC is almost exactly the same.
- Note: Indicative of investment. There has been a decline since 2015.

ECONOMIC AND INFRASTRUCTURE OVERVIEW

IMPACT OF LOADSHEDDING ON ECONOMY – SA and WC



SOUTH AFRICA:

A macroeconomic impact study conducted to determine the impact of loadshedding on the country yielded the following results.





- During 2022, due to 3 773 hours of loadshedding, **R366.3 billion** worth of **GDP was lost** owing to various stages of loadshedding. The **GVA** loss amounted to **R628.2 billion**.
- This translates to **R1 billion per day loss in GDP** in nominal terms. In real prices, this translates to R960.4 million.

WESTERN CAPE

Loadshedding Impact 2022 WC (Proxy)

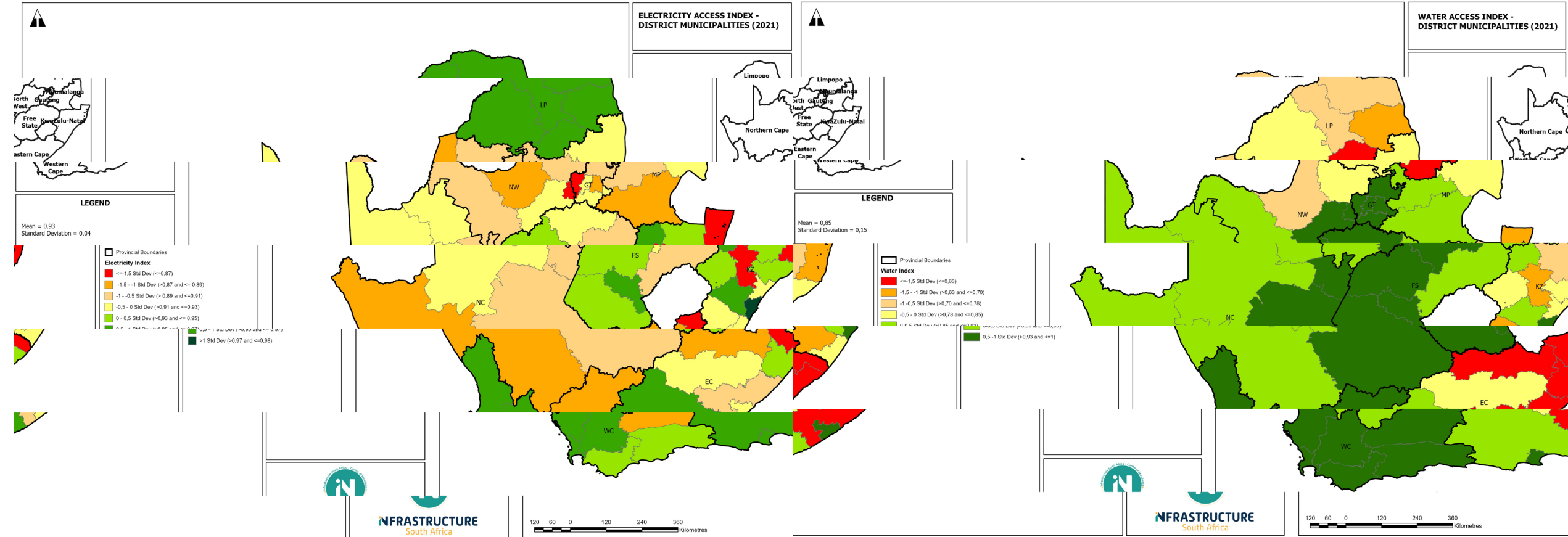
- **GVA Loss -R85.6 billion**

SA - GVA LOSS in 2022

GVA (R million)				
Sector	Direct	Indirect	Induced	Total
Agriculture, forestry and fishing	-3 793	-3 238	-4 499	-11 530
Mining and quarrying	-14 943	-8 970	-18 132	-42 045
Manufacturing	-15 490	-30 598	-40 881	-86 969
Electricity, gas and water	-8 930	-5 621	-8 511	-23 062
Construction	-3 207	-4 824	-6 645	-14 676
Wholesale and retail trade, catering and accommodation	-27 813	-15 629	-32 415	-75 857
Transport, storage and communication	-15 893	-11 221	-18 003	-45 117
Finance, real-estate and business services	-50 173	-38 309	-67 731	-156 213
General government services	-20 579	-6 530	-36 972	-64 081
Personal services	-32 137	-23 009	-53 546	-108 692
Total	-192 958	-147 949	-287 335	-628 242

ECONOMIC AND INFRASTRUCTURE OVERVIEW

ELECTRICITY AND WATER ACCESS INDEX



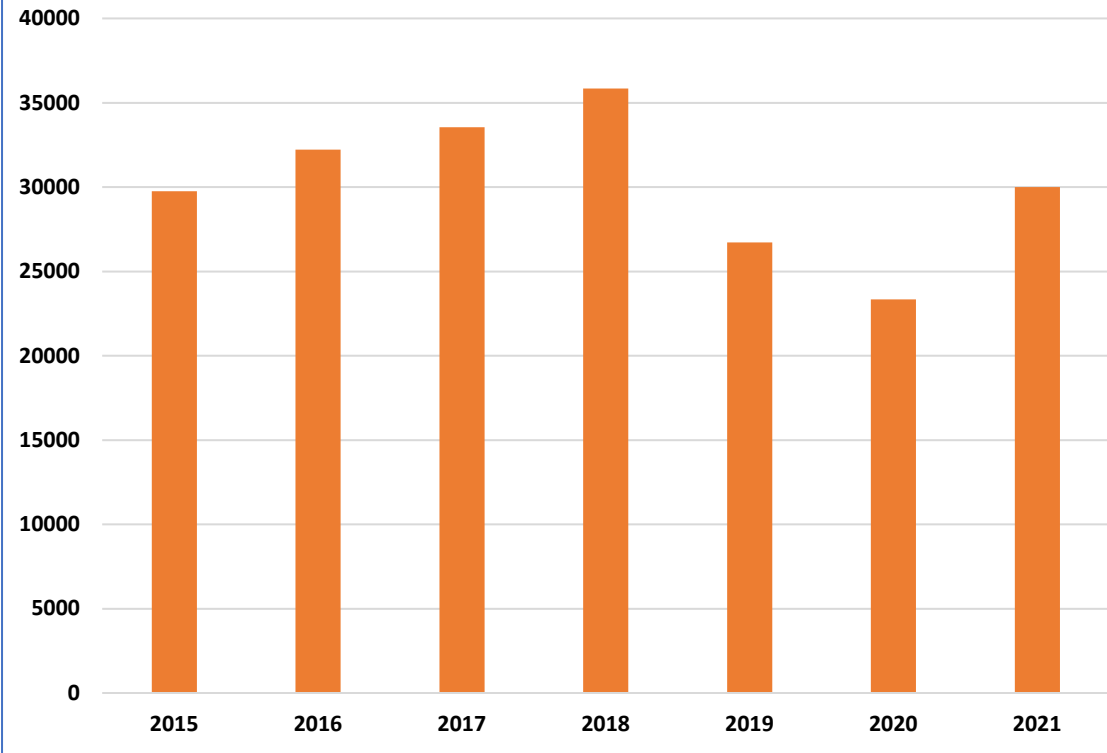
Source: Adapted from StatsSA

ECONOMIC AND INFRASTRUCTURE OVERVIEW

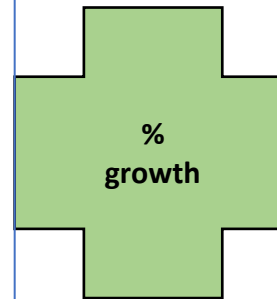


WESTERN CAPE CONSTRUCTION OF BUILDINGS

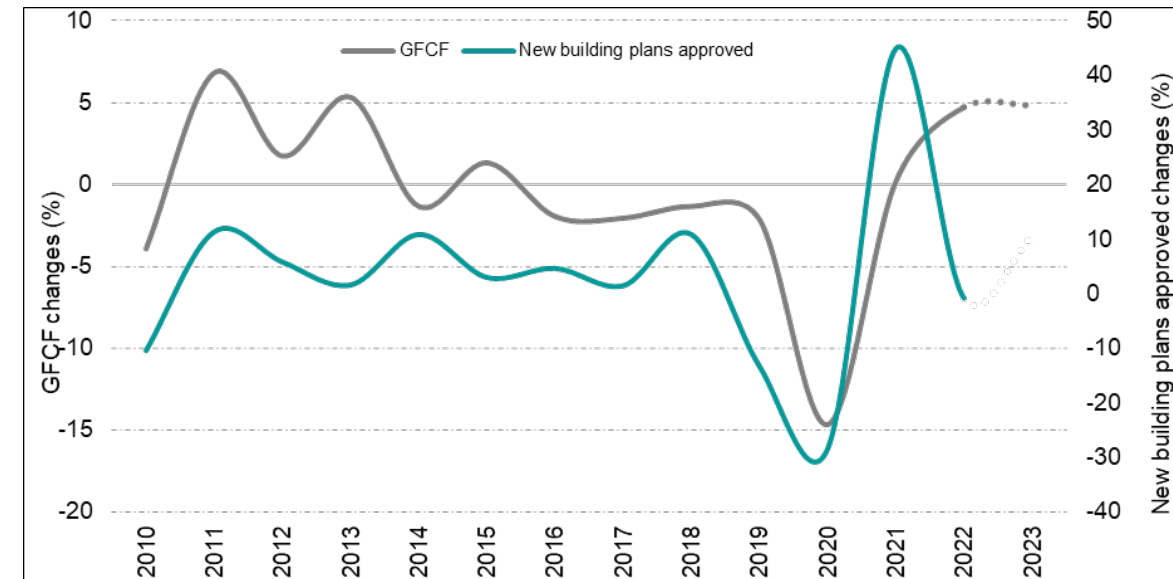
Building Plans Passed All Building Types Units (Number)
Western Cape Province



Source: Quantec



- Passed = Leads economic growth
- Completed = Lags economic growth
- Since the Covid-19 economic lockdown, there has been clear growth in these construction indicators in the Western Cape.
- In 2022, the number of plans passed grew by 34,4% and completed by 24,1%.



ECONOMIC AND INFRASTRUCTURE OVERVIEW

GROWTH PERFORMANCE INDEX – WESTERN CAPE PROVINCE



Sector	GVA (2021) Rm	GPI	LQ (2021)
Agriculture, forestry and fishing	R24 879	88,24	1,36
Mining and quarrying	R989	74,62	0,03
Manufacturing	R81 935	102,47	1,1
Electricity, gas and water	R10 496	100,63	0,72
Construction	R21 266	99,16	1,35
Wholesale and retail trade, catering and accommodation	R81 825	100,04	1,1
Transport, storage and communication	R50 239	97,25	1,06
Finance, insurance, real estate and business services	R183 455	102,4	1,23
General government	R58 500	103,7	1,12
Community, social and personal services	R63 447	100,48	0,64

Source: Quantec

The **Growth Performance Index** provides an indication of the growth in a certain sector in the economy relative to the growth attained in the same sector in the provincial economy. An index larger than 100 indicates a leading sector. **Location Quotient** – This indicates the comparative advantage (higher than 1) of a specific sector compared to the aggregate economy.

INFRASTRUCTURE AND JOBS

EMPLOYMENT IN THE WESTERN CAPE PROVINCE



SIC Industry	Total Employment (2021)	Total Formal Employment (2021)	Formal Employment as % of Total Employment	SA Job Multiplier (per R' Million)
Agriculture, forestry and fishing	229 198	178 964	78%	1,33
Mining and quarrying	1 382	1 297	94%	2,42
Manufacturing	230 459	202 617	88%	3,25
Electricity, gas and water	8 250	7 674	93%	2,94
Construction	129 206	97 150	75%	1,72
Wholesale and retail trade, catering and accommodation	512 648	373 937	73%	1,36
Transport, storage and communication	93 797	71 670	76%	2,06
Finance, insurance, real estate and business services	469 548	414 784	88%	1,83
Community, social and personal services	155 127	155 127	100%	1,54

Source: Quantec and Infrastructure South Africa

- **Total employment in 2021: 2 309 769 jobs**
- **Job Multiplier** based on direct job multipliers for the national economy. It is used to reflect the **number of potential jobs created per Rand million spending** in the respective industry.



Infrastructure Scenarios

“A smart infrastructure is a **smart system that uses a data feedback loop to improve decision-making regarding a matter**. A system that can monitor, measure, analyze, communicate and act based on **data collected by sensors.**”

“Smart **Governance** is the use of **technology and innovation to facilitate and support** enhanced decision-making and planning within governing bodies”

INFRASTRUCTURE SCENARIOS

Infrastructure Investment and Governance

“Infrastructure is mainly a governance challenge.....”
~ OECD

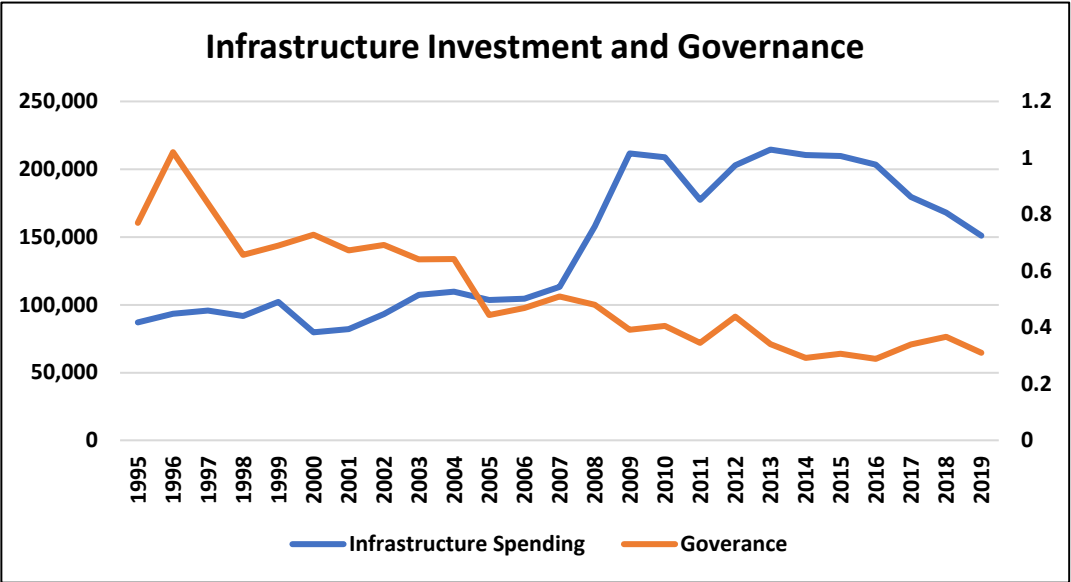


Y = Infrastructure Investment
X = Governance

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.8154014
R Square	0.6648794
Adjusted R Square	0.6503090
Standard Error	30174.754
Observations	25

#1. What % of Y is explained by X?
GOODNESS OF FIT
R square is called “coefficient of determination”
About 66% of variation in Y is explained by X



ANOVA					
	df	SS	MS	F	Significance F
Regression	1.00000	41,548,669,888.75	41,548,669,888.75	45.63201	0.00000
Residual	23.00000	20,941,863,051.92	910,515,784.866		
Total	24.00000	62,490,532,940.67			

#3. Is impact statistically significant?
Yes. Impact is stat sig, based on t stat
p value = 0.0000 (p value < α of 0.05)

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	251,997.96	17,305.352	14.56185	0.00000	216,199.11	287,796.81	216,199.11	287,796.8
Governance	-209,307.19	30,984.845	-6.75515	0.00000	-273,404.23	-145,210.16	-273,404.23	-145,210.2

#2. How are X and Y related?
Inversely related as sign of coefficient is negative



Governance

Openness and transparency + effective collaboration + performance orientated = results.

INFRASTRUCTURE SCENARIOS



Infrastructure Scenarios Megatrends

Megatrend 1: Urbanization and population growth pressures on infrastructure development

Megatrend 2: The future of smart cities

Megatrend 3: Ageing infrastructure

Megatrend 4: The incorporation of smart and renewable energy sources

Megatrend 5: The incorporation of smart digital infrastructure

Megatrend 6: Future of water

Megatrend 7: Sustainable integrated transport infrastructure and logistics

Megatrend 8: The rise of megaprojects in infrastructure development

Megatrend 9: Infrastructure financing gap: the rise of PPP's

Megatrend 10: Infrastructure reduces inequality

Megatrend 11: Environmental governance / corporate social responsibility of infrastructure development

Megatrend 12: The rise of new infrastructure materials and substances

Megatrend 13: The future of agricultural infrastructure

Megatrend 14: The future of demand: the shift to emerging economies

Megatrend 15: The increased pressures of climate change

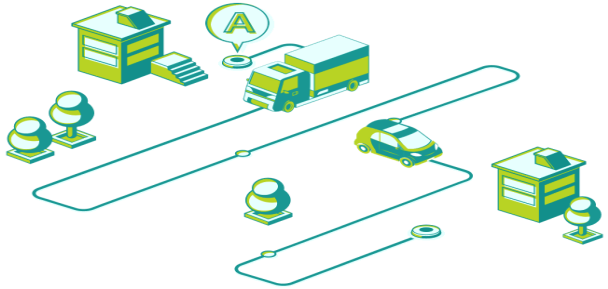
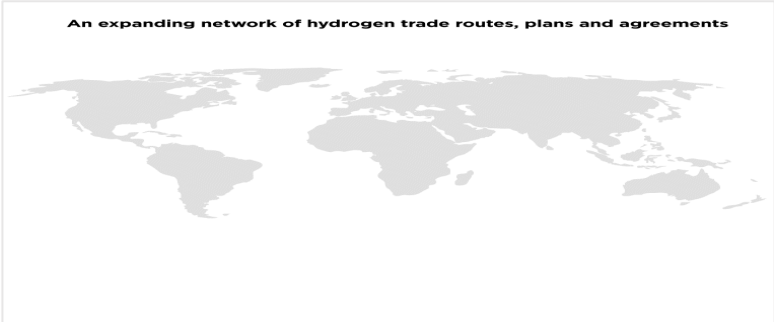
Megatrend 16: The continuous rise of natural disasters and resilient infrastructure

Megatrend 17: The rise of health and safety concerns of infrastructure

Megatrend 18: The drive towards human settlements and community development

Megatrend 19: Future resource scarcity and rise of the circular economy

Megatrend 20: The rise of security risks on infrastructure



INFRASTRUCTURE SCENARIOS



The Three Infrastructure Scenarios

The Waxing Moon over Mzansi scenario



- The Waxing Moon over Mzansi scenario reflects an environment in South Africa where advances in smart infrastructure, despite their global innovative potential, **are not fully utilized in South Africa towards 2050** to unlock the emerging opportunities offered.
- In this scenario, **good governance is not allowed to empower the smart infrastructure environment**; therefore, it remains on the “far side” as a lost opportunity to include all the scales of smart infrastructure development.

The Two Wolves Within Mzansi Scenario



- The Two Wolves Within Mzansi scenario reflects an environment where smart infrastructure value chains offer opportunities for acceptance and for the development and smart infrastructure inclusion
- Due to a lack of smart infrastructure governance commitment and engagement between the multiple stakeholders, **smart infrastructure is not integrated into value chains**

The Rising Sun in Mzansi Scenario



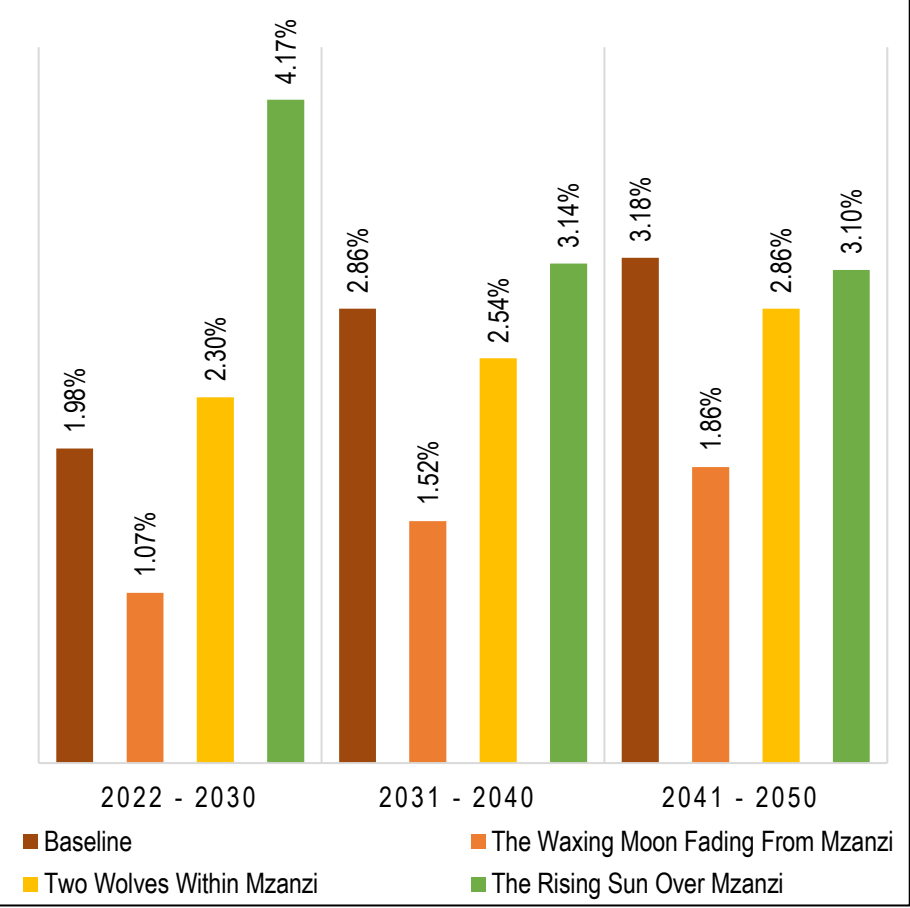
- The Rising Sun in Mzansi Scenario reflects that **the smart infrastructure environment** is inclusive of all scales of smart governance.
- Higher levels of inclusiveness expand the acceptance **of smart infrastructure opportunities and act as the primary source of inspiration, vision and hope** for all scales of high-impact infrastructure governance in South Africa towards 2050.
- The key to success is the effort of multiple stakeholders, and the **adoption of disruptive technologies**, which boost high levels of product, process and system innovations of smart infrastructure towards 2050

INFRASTRUCTURE SCENARIOS

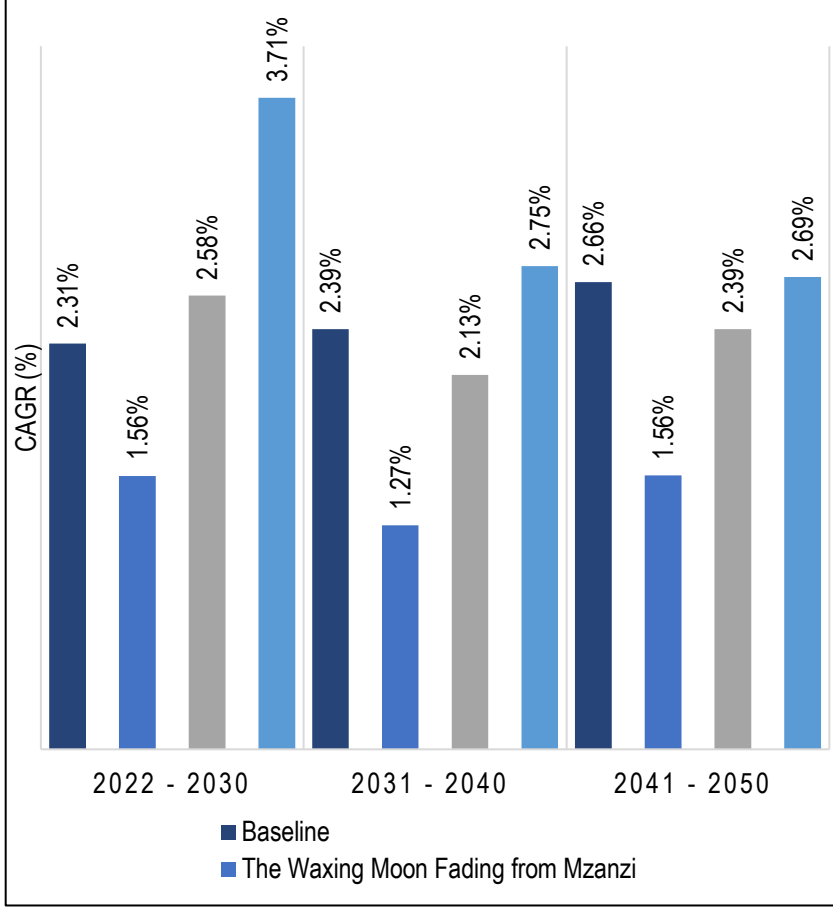
Infrastructure Scenarios – Economic Factors



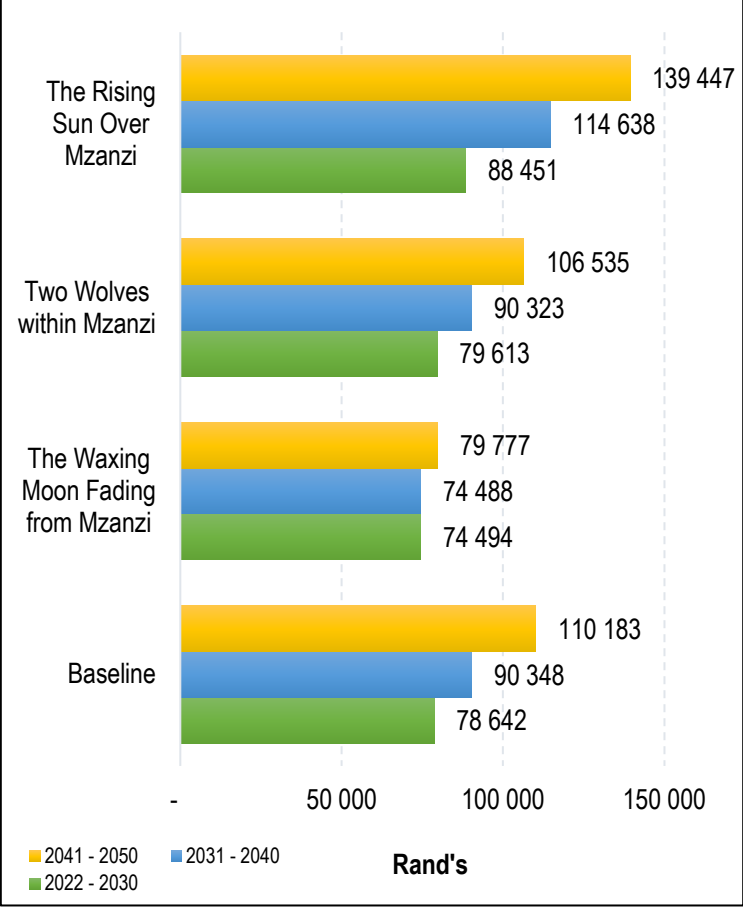
REAL GDP GROWTH



EMPLOYMENT



GDP per Capita



KEY TAKEAWAYS



Growth Correlations

Strong correlations between growth in capital investment, GDP and employment at provincial level

Infrastructure

The province compares favorably with other province in terms of infrastructure delivery. The RAI also reflects that in general the province have very good accessibility. There are, however, areas with poor access to infrastructure and this is also reflected in the low levels of investment in those areas.

GVA Growth

Growth fluctuations in provincial economy since 2010, noting the 5% growth in 2021. Provincial economy mostly tertiary sector driven with the financial services industry contributing the most to GVA.

Employment Growth

Growth showing a downward overall trend since 2018 with the highest employment losses in 2020. The bulk of employment was within the tertiary sector.



Thank you

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