



KEAMOGETSWE MMEKWA (CESA YPF CHAIRPERSON)

Factors influencing the effective delivery of infrastructure



KEY FACTORS INFLUENCING THE DELIVERY OF INFRASTRUCTURE

EXTRINSIC FACTORS

- **POLITICAL (PROCUREMENT)**
- **FISCAL PRIORITISATION OF INFRASTRUCTURE**
- **PROFESSION RECOGNITION**

INTRINSIC FACTORS

- **UNDERSTANDING GENERATIONS**
- **INNOVATION AND TECHNOLOGY**
- **INTERNAL POLITICS**

EXTRINSIC FACTORS

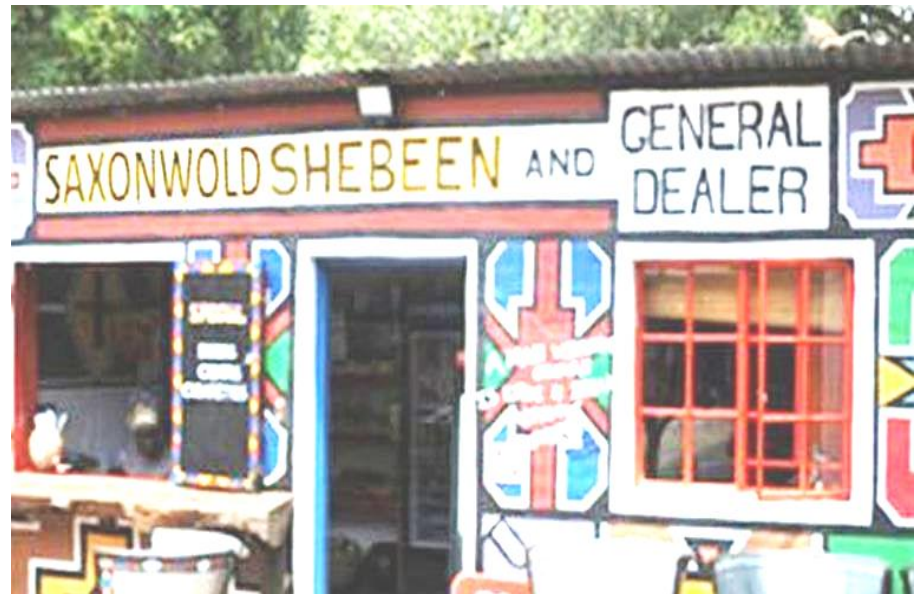
EXTERNAL FACTORS INFLUENCING INFRASTRUCTURE DELIVERY

1 - POLITICAL (PROCUREMENT)

EXTRINSIC FACTORS

POLITICAL (Procurement)

- Discounts
- Corruption
- Free Industry Access (Regulation)



EXTRINSIC FACTORS

POLITICAL (Procurement) – Free Industry Access:



ALL MOONLIGHT AS ENGINEERS OR OWN CONSTRUCTION COMPANIES

EXTRINSIC FACTORS

POLITICAL (Procurement) – Free Industry Access:



POOR WORKMANSHIP-COLLAPSES-DEATH



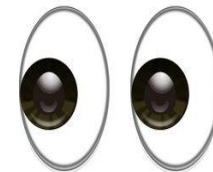
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EXTRINSIC FACTORS

POLITICAL (Procurement) – Free Industry Access:



WHERE – YOU – AT?



EXTRINSIC FACTORS

EXTERNAL FACTORS INFLUENCING INFRASTRUCTURE DELIVERY

2 - FISCAL PRIORITISATION OF INFRASTRUCTURE



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EXTRINSIC FACTORS

BUDGET – Share of the Fiscal Pie (Mid Term Budget 2016):

- Those who need work
- Those who want to study
- Those who seek opportunities in their careers or businesses, and for their families,
- Those who dream of greatness in the arts, in sport, as builders or teachers, in business or in public service.

EXTRINSIC FACTORS

BUDGET – Share of the Fiscal Pie (Historical and Long Term):

- Our economic growth will be just 0.5 per cent this year, rising to 1.7 per cent in 2017.
- Debt is projected to stabilise at just less than 48 per cent of GDP.
- Infrastructure investment, mainly in energy, transport and telecommunications, will amount to over R900 billion over the next three years.



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EXTRINSIC FACTORS

BUDGET – Share of the Fiscal Pie (Historical and Long Term):

"Our central message is that stable and sustainable public finances, alongside economic reforms and a transparent monetary policy, can support a return to the higher growth rates needed to achieve the National Development Plan's goals."



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EXTRINSIC FACTORS

BUDGET – Share of the Fiscal Pie (Future Focus):

What the Minister's message translated to in terms of **'inclusivity'**:

- The quality of education,
- The pace and pattern of urbanisation and housing development,
- Industrial development and the expansion of employment, trade and commerce,
- Social protection services, including access to health care and social security.

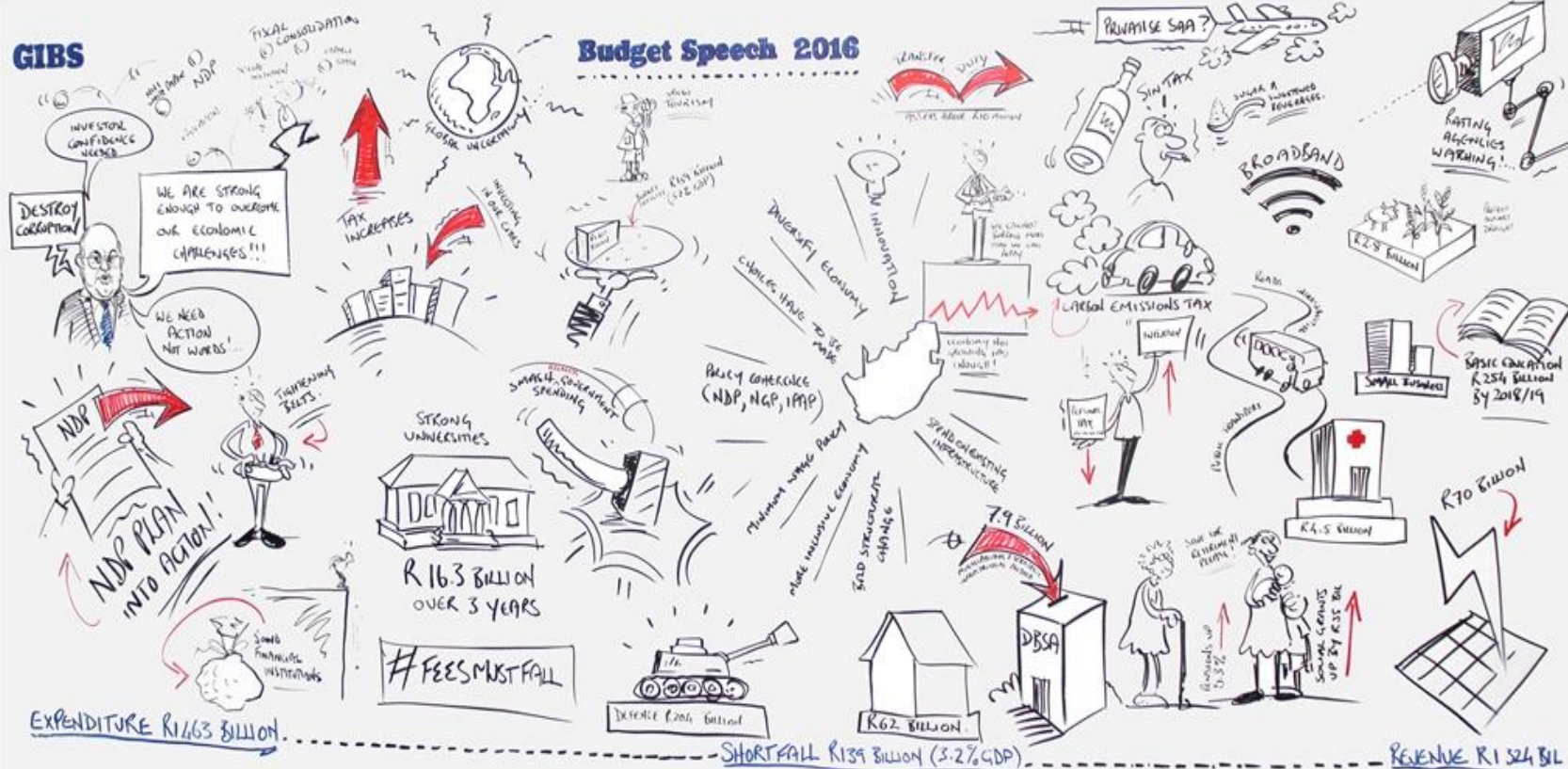
GIBS

Figure Credit: GIBS

EXTRINSIC FACTORS

BUDGET – Share of the Fiscal Pie (Priorities):

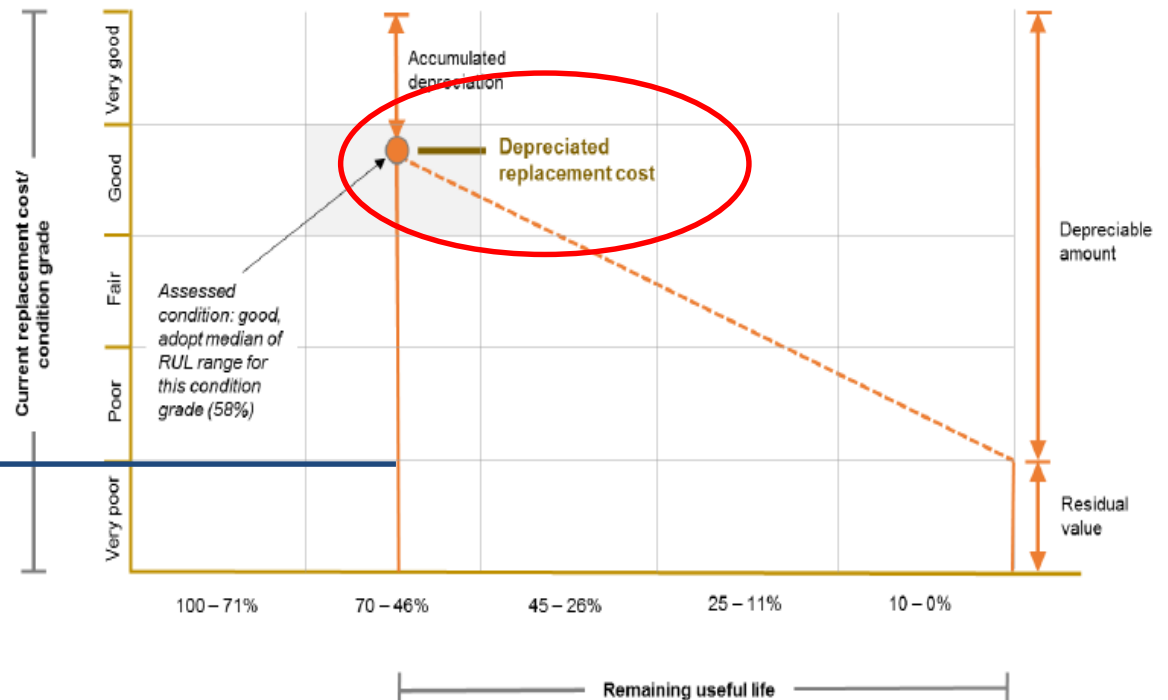


- Additional R9 Billion for NSFAS
- In total adding R16.3 Billion from 2015 Budget

EXTRINSIC FACTORS

BUDGET – Share of the Fiscal Pie (Priorities):

- Depreciating Assets
- South Africa – Assets at 53% of RUL (IN 2006)



EXTRINSIC FACTORS

BUDGET – Share of the Fiscal Pie (Backlogs):

- Service Access Backlogs – R7214 million

Asset groups	Asset portfolios	Consumer units			Cost to eradicate access backlogs (R million)
		Adequate access	Access backlog	% backlog	
Engineering infrastructure	Electricity	197 463	47 792	19%	695
	Roads	171 531	73 745	30%	1 875
	Sanitation	152 550	92 727	38%	1 341
	Solid waste	205 661	39 615	16%	41
	Stormwater	167 844	77 432	32%	269
	Water	119 769	125 508	51%	623

Table: Louis Boschhoff (i@Consulting)

EXTRINSIC FACTORS

BUDGET - INFRASTRUCTURE (Civil and Electrical infrastructure portfolios):

ENERGY



Generation

SOLID WASTE



Composting

TRANSPORTATION



Airports

WATER



Bulk Water Abstraction,
Storage & Conveyance



Transmission



Reclamation



Roads & stormwater



Water Treatment,
Storage & Distribution



Distribution



Landfill



Bridges



Sewage Collection,
Treatment & Disposal



WHAT FIRST?

EXTRINSIC FACTORS

BUDGET - INFRASTRUCTURE (The country's roads):

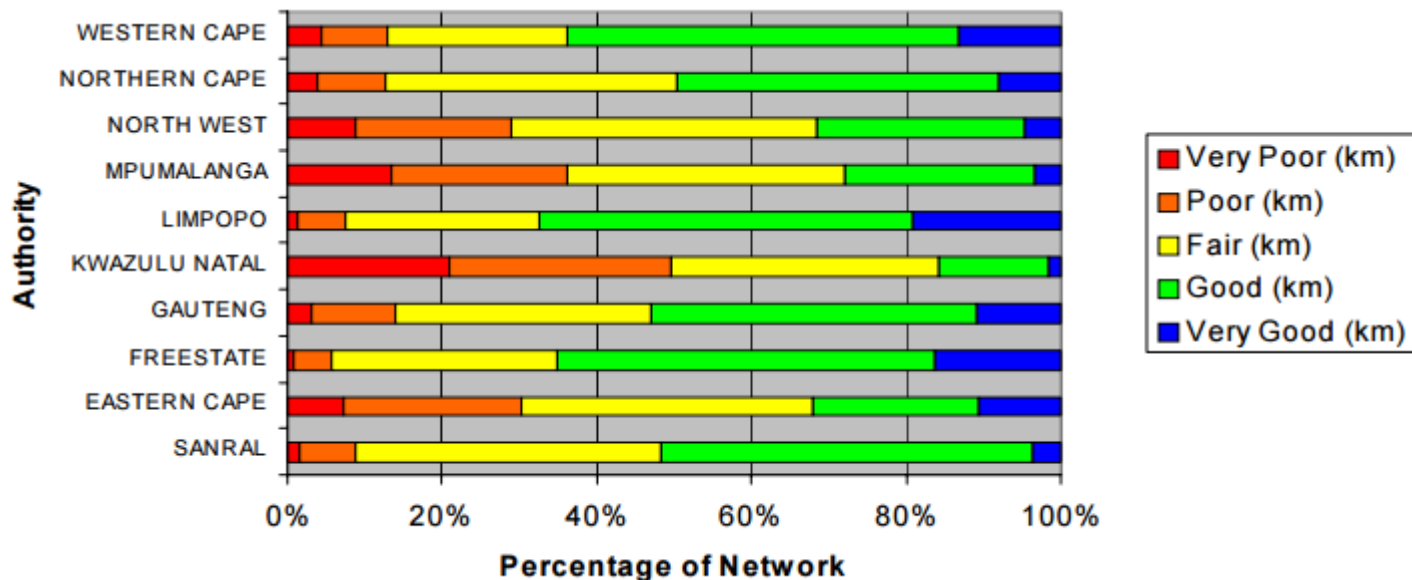
Authority	Paved	Gravel	Total
SANRAL	16,170	0	16,170
Provinces - 9	48,176	136,640	184,816
Metros - 9	51,682	14,461	66,143
Municipalities	37,691	302,158	339,849
Total	153,719	453,259	606,978
Un-Proclaimed (Estimate)		140,000	140,000
Estimated Total	153,719	593,259	746,978



ONLY 20% OF ROADS ARE PAVED???

EXTRINSIC FACTORS

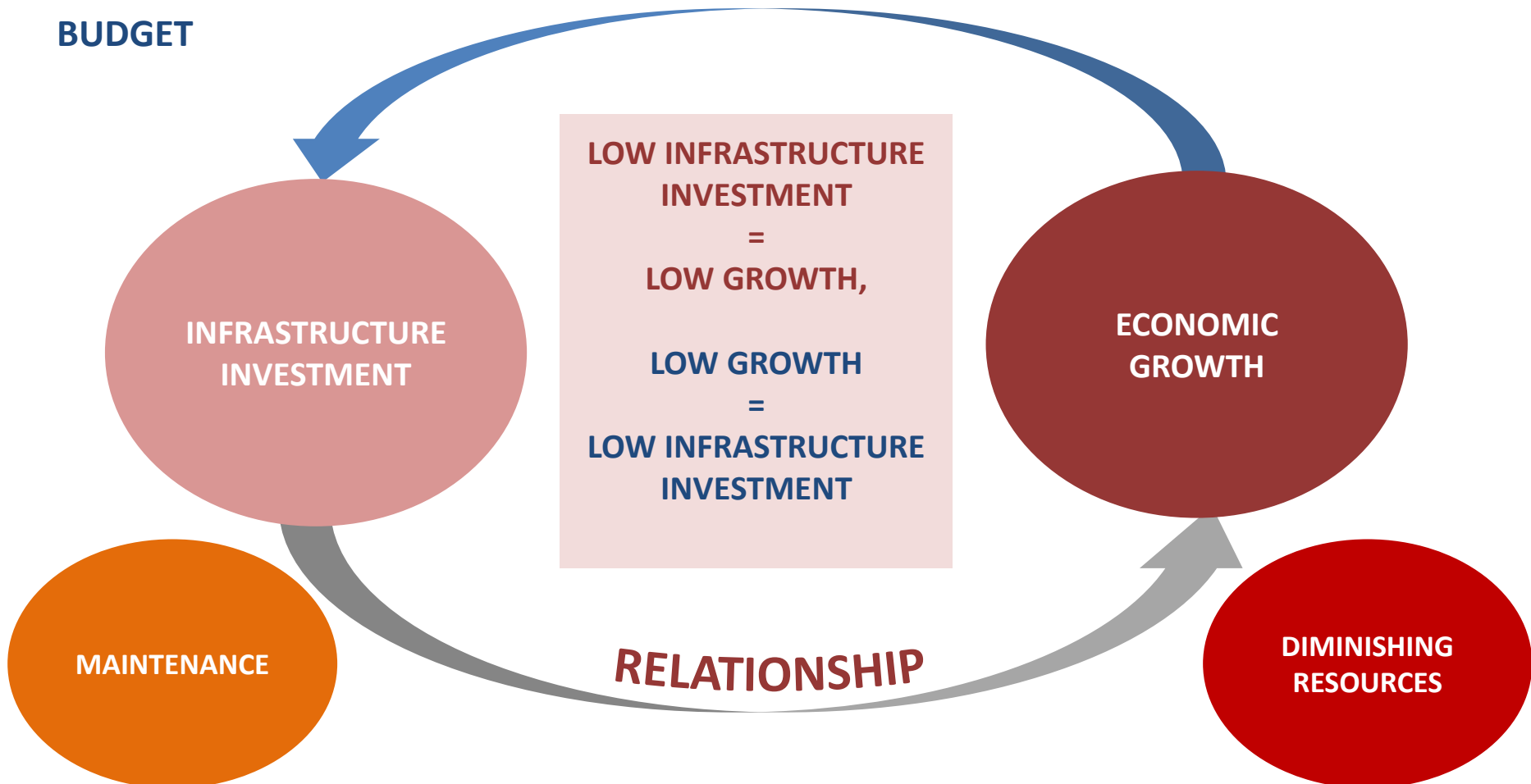
BUDGET - INFRASTRUCTURE (The country's Roads):



NOT A BAD BALANCE...BUT...

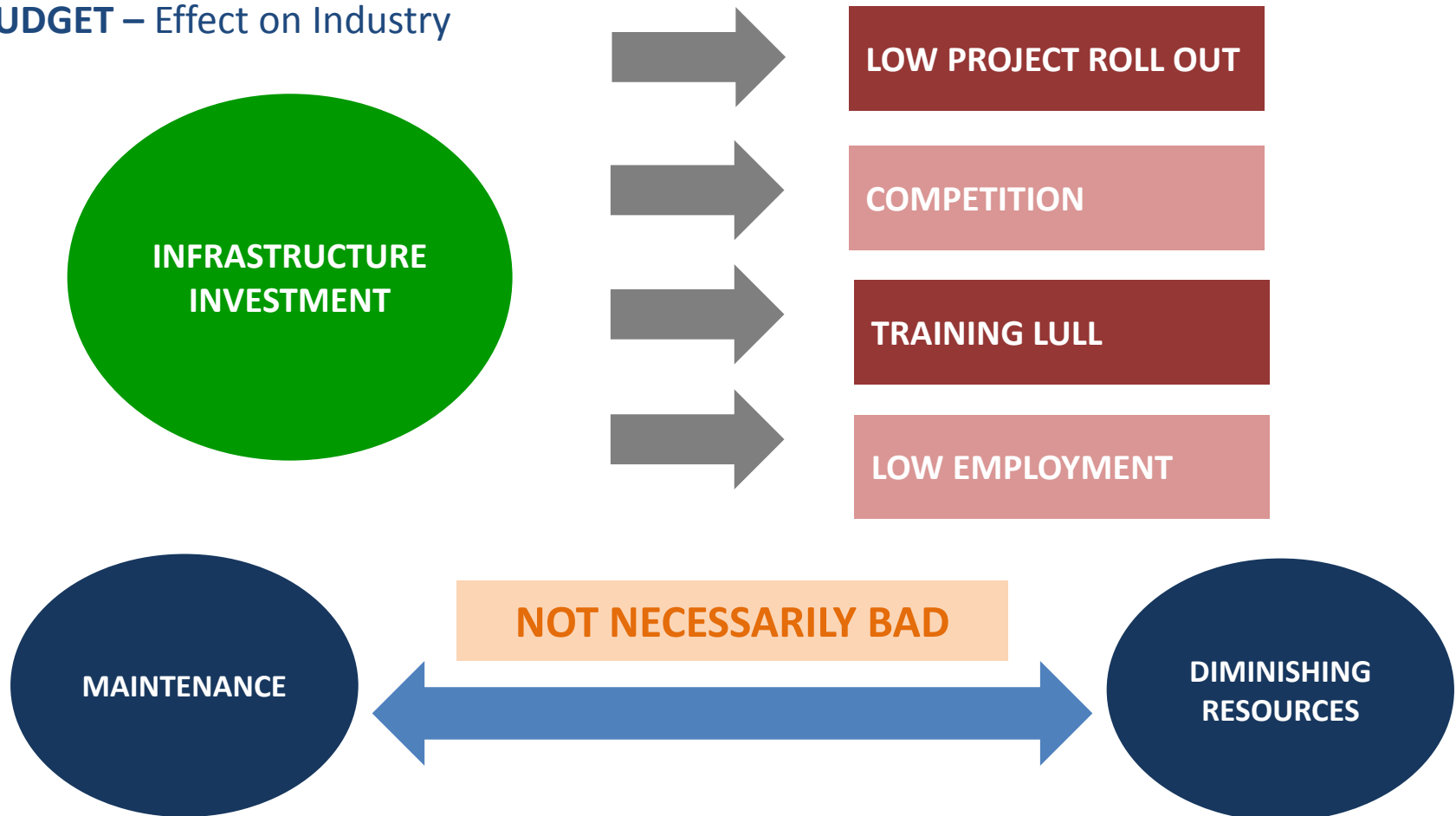
EXTRINSIC FACTORS

BUDGET



EXTRINSIC FACTORS

BUDGET – Effect on Industry



EXTRINSIC FACTORS

BUDGET – Policy Alignment



EXTRINSIC FACTORS

EXTERNAL FACTORS INFLUENCING INFRASTRUCTURE DELIVERY

3 - PROFESSION RECOGNITION

EXTRINSIC FACTORS

RECOGNITION – Industry Recognition:

- Policy Change
- Regulation of Industry
- Create Value

PRIDE



VALUE TIME



IT'S A BUSINESS



COLLECT

INTRINSIC FACTORS

INTERNAL (TO THE INDUSTRY) FACTORS INFLUENCING INFRASTRUCTURE DELIVERY

1 – UNDERSTANDING GENERATIONS

INTRINSIC FACTORS

UNDERSTANDING GENERATIONS – The face of Engineering South Africa



PAST



PRESENT

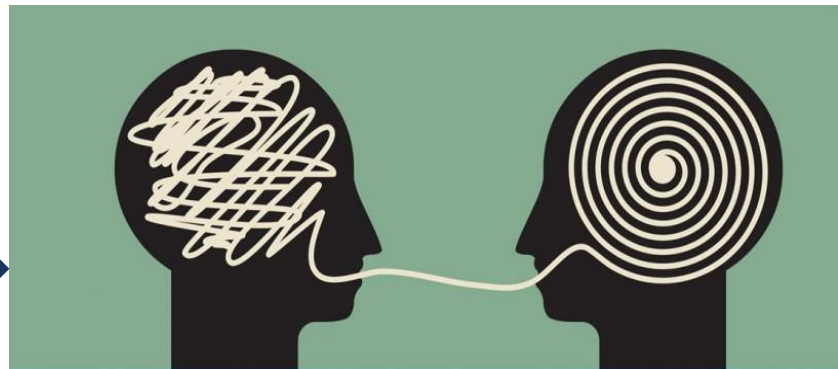
INTRINSIC FACTORS

UNDERSTANDING GENERATIONS – The face of Engineering South Africa

UNFORTUNATELY HASN'T CHANGED OUR PERCEPTIONS AND PREJUDICES



**CHANGE YOUR MIND
BY CHANGING YOUR
PERCEPTION**



THE CONVERSATION NEEDS TO START

INTRINSIC FACTORS

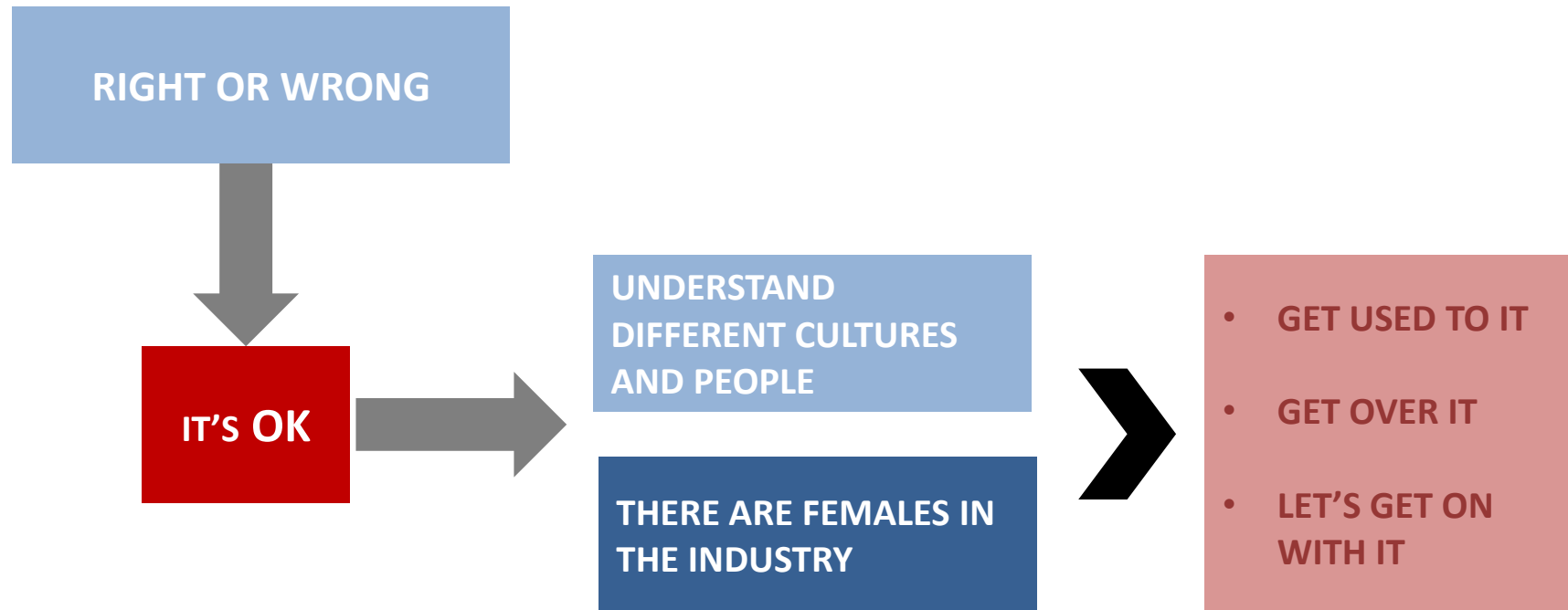
UNDERSTANDING GENERATIONS – The face of Engineering South Africa

50+	The never mind, not about fuss crew. I understand my status. Decisions focused on securing pension. Want solutions. The know it all crew. Likely to be great mentors. Helpful but apathetic. The past equals better than present crowd.
40+	Have succeeded or failed. Either made it or know they'll never make it. Ambition waning or on steroids. Still want to prove themselves to the world for some reason. Reputational. Knowledge hogging crew. If they get past ego, great teachers.
30+	The 20-40 something blend. Failed status quo changers because of historical comfort with hegemony. Partial to 20s causes but think about personal ambitions and fancy cars. Slaves to their work. Failed jugglers. Highly ambitious.
20+	The extremists. The Fees Must Fallers. Unaccepting of the status quo. Kinda crazy. Now generation. Know more about dead revolutionaries than 50+. At work need more pushing.

TABLE: SUBJECTIVE GENERALISATIONS OF DIFFERENT GENERATION OF ENGINEERS

INTRINSIC FACTORS

UNDERSTANDING GENERATIONS – The face of Engineering South Africa



INTRINSIC FACTORS

UNDERSTANDING GENERATIONS – The face of Engineering South Africa

THE IDEA of A
WOMAN BEING STRONG,
SIMPLY TO BE STRONG
— NOT TO
PROVE ANYTHING —
IS *normal* TO ME.

— CHIMAMANDA NGOZI ADICHIE
5/19/14



INTRINSIC FACTORS

INTERNAL (TO THE INDUSTRY) FACTORS INFLUENCING INFRASTRUCTURE DELIVERY

2 – INNOVATION AND TECHNOLOGY

INTRINSIC FACTORS

INNOVATION AND TECHNOLOGY – Busting Myths

- Africa is the only continent lacking in infrastructure mentality
- Africans are not innovative
- Africa is poor



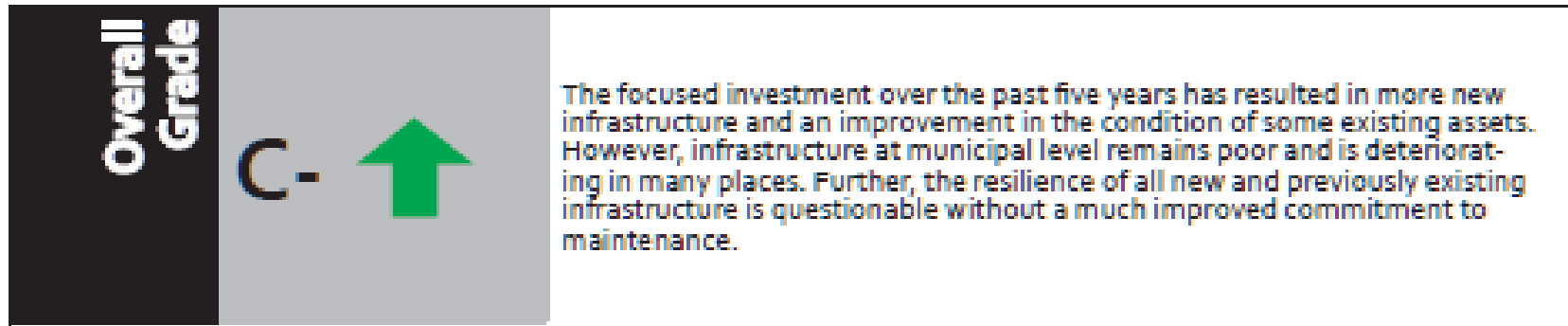
INTRINSIC FACTORS

Africa lacks infrastructure:

- THE INFRASTRUCTURE NEED OF SUB-SAHARAN AFRICA EXCEEDS US \$93 BILLION ANNUALLY OVER THE NEXT 10 YEARS. (AICD) - **So does the rest of the world**
- FINANCING GAP OF MORE THAN US \$50 BILLION - **USA needs \$X trillion to meet infrastructure needs**
- THE POOR STATE OF INFRASTRUCTURE IN SUB-SAHARAN AFRICA CUTS NATIONAL ECONOMIC GROWTH BY TWO PERCENTAGE POINTS EVERY YEAR AND REDUCES PRODUCTIVITY BY AS MUCH AS 40 PER CENT – **More visible because Africa is underdeveloped, but fastest growing economies ARE in Africa e.g. Ivory Coast**

INTRINSIC FACTORS

Africa lacks infrastructure – State of South Africa's Infrastructure



C – The infrastructure condition is acceptable although stressed at peak periods. It will need investment in the current Medium term Expenditure Framework period to avoid serious deficiencies.



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INTRINSIC FACTORS

INNOVATION AND TECHNOLOGY – Africans lack innovation/inventors:

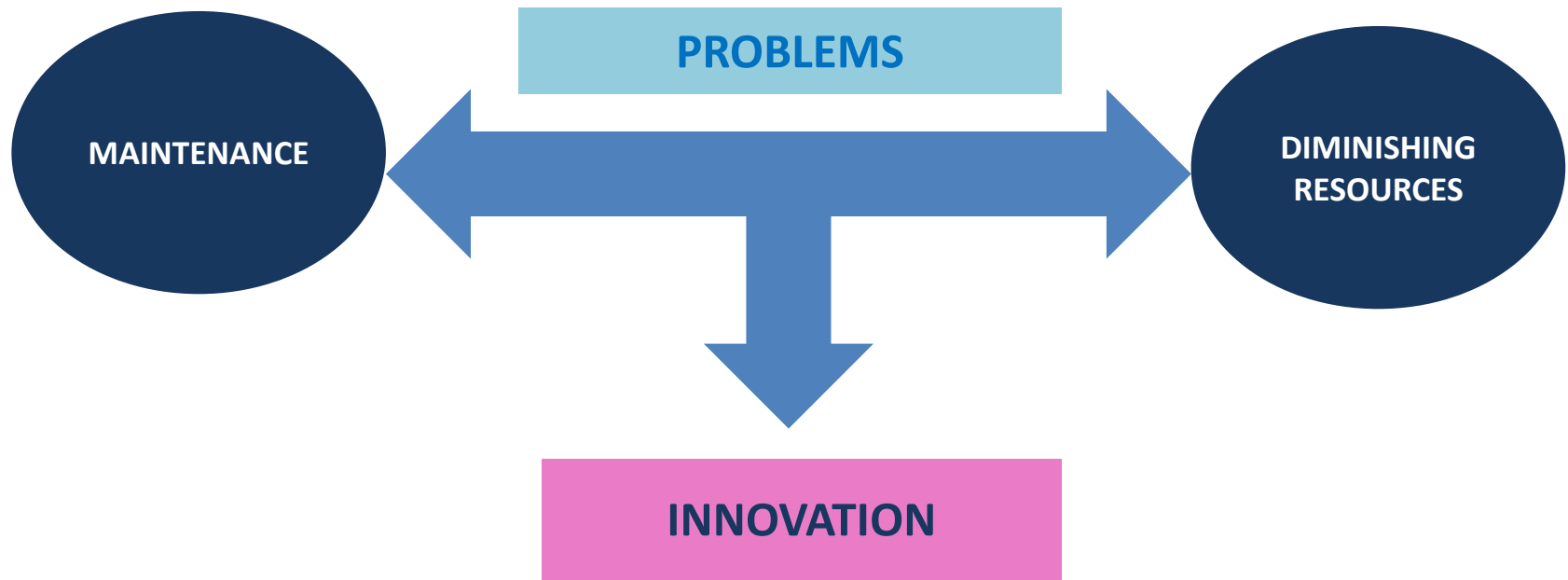
- William Kamkwamba (Windmill) to generate electricity
- Kunlè Adeyemi (Floating Lagoon)
- Jesse Moore and Nick Hughes (Technology to get energy)
- Elon Musk

PATTERN?

PROBLEMS = INNOVATION

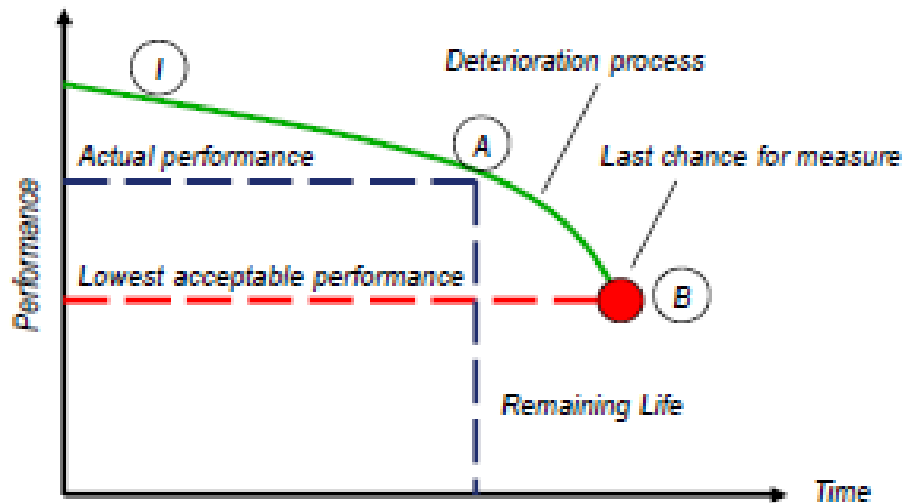
INTRINSIC FACTORS

INNOVATION AND TECHNOLOGY – Africans lack innovation/inventors:



INTRINSIC FACTORS

INNOVATION AND TECHNOLOGY – Civil Infrastructure Life cycle models:



**INCORPORATE TECHNOLOGY
FOR MORE ACCURATE
MODELS**

MODELS NEED TO BE REVISED...OR...



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INTRINSIC FACTORS

INNOVATION AND TECHNOLOGY – Technology:

- Technology helps where there are limited resources
- For improved research (e.g. understand behaviour of infrastructure)
- Defer Maintenance and used budgets at areas required the most (e.g. SHMs)
- Make life easier (e.g. Drawing and Designing tools)

INTRINSIC FACTORS

INTERNAL (TO THE INDUSTRY) FACTORS INFLUENCING INFRASTRUCTURE DELIVERY

3 – INTERNAL POLITICS



INTRINSIC FACTORS

INNOVATION AND TECHNOLOGY – Internal politics:

- Snobbishness (Hierarchy: Engineer – Technologist – Technician): No Hegemony
- Categorisation Mess up – Overlap of work: No clear lines of demarcation
- Transformation – One of slowest sectors
- Ratio of registered person to citizen still very low.

INTRINSIC FACTORS

INNOVATION AND TECHNOLOGY – Internal politics:

**IF WE CAN'T SORT OUR INTERNAL ISSUES HOW DO WE BEGIN TO ADDRESS THE
EXTERNAL FACTORS AFFECTING OUR INDUSTRY?**

~ END ~