



# Critical Success Factors for Capital Projects in South Africa

SAOGA networking breakfast

Cape Town, 29 September 2010

By: Mile Sofijanic

Reframing for the Future





# Critical Success Factors for Capital Projects in South Africa

## Themes to be explored

Defining success

Murray & Roberts Overview

Project realities

Industry realities

Proposed Successful Capital Projects Framework Principles

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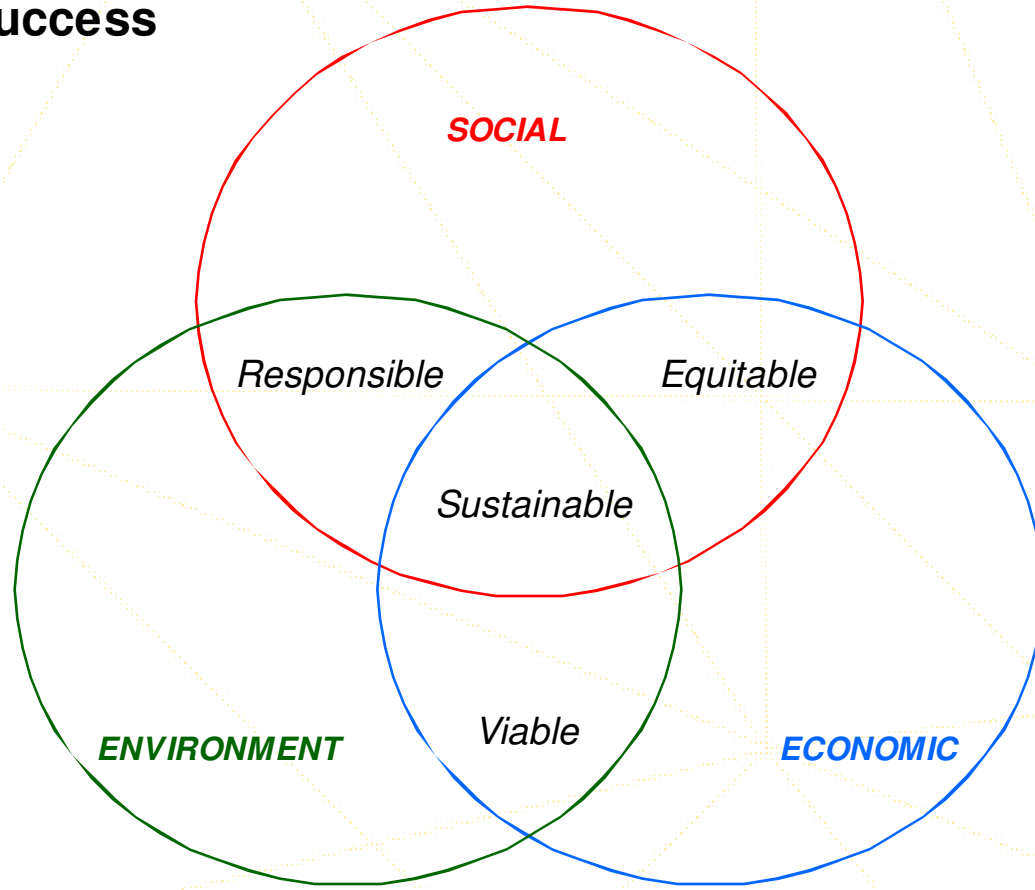
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# Defining Success

**Sustainable success**



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## Defining Success

**Sustainable success using South African solutions!**

*Delivering world class projects in South Africa  
competitively without compromise to development  
objectives i.e. industrialisation, localisation and  
upliftment*

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## Major Projects in Murray & Roberts Group

Preliminary report for the year ended 30 June 2010:

*“The scale and duration of the major projects secured by the Group over the past few years present a number of challenges, not least of which is revenue recognition, such that neither present nor future shareholders are unduly prejudiced or advantaged relative to one another.”*

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## Defining Success

Critical Success Factors for competitive, sustainable and world class capital projects delivery in South Africa:

**Work Pipeline Predictability**

**Stakeholders Relationship**

**Programme & Project Management Philosophy and Approach**

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## Group Overview

Murray & Roberts is South Africa's leading engineering, contracting and construction services company, with a primary focus on the resources-driven construction markets in industrial & mining , oil and gas and power and energy.



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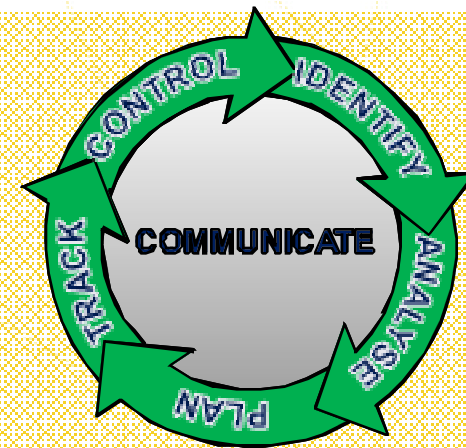


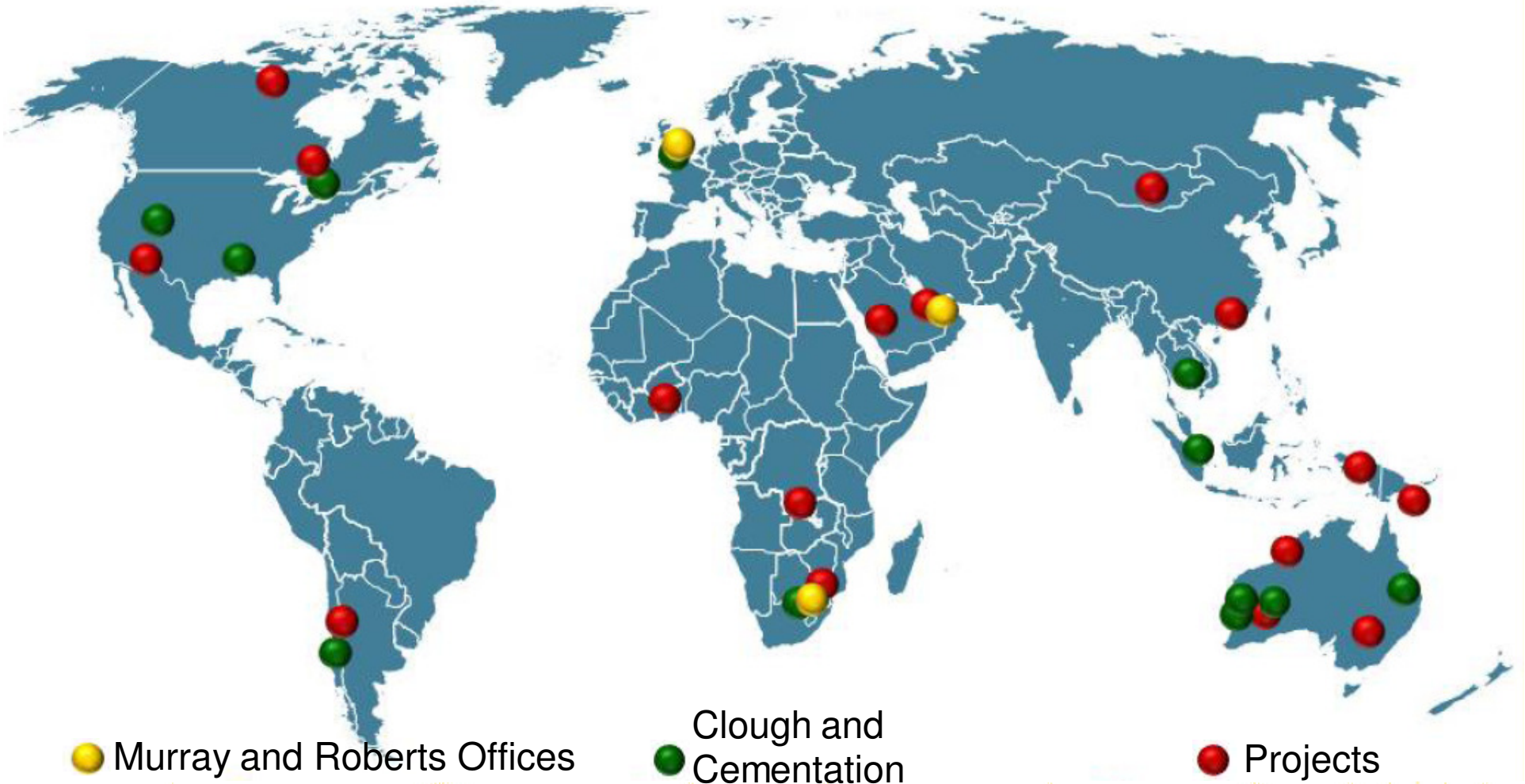
# We aspire for zero harm!

## Stop.Think!



- ❑ Murray & Roberts integrates sound health, safety and environmental management into all aspects of our business activities
- ❑ Our STOP.THINK Bill of Rights commits Murray & Roberts to a safe and healthy working environment for all our employees, clients, stakeholders and all visitors to every one of our worksites







# Group Overview

Operational clusters		Investments
<b>Construction SADC</b>	<ul style="list-style-type: none"> <li>• Murray &amp; Roberts Construction</li> <li>• Murray &amp; Roberts Namibia</li> <li>• Murray &amp; Roberts Botswana</li> </ul>	<ul style="list-style-type: none"> <li>• Concor</li> <li>• Tolcon</li> </ul>
<b>Engineering SADC</b>	<ul style="list-style-type: none"> <li>• <b>Murray and Roberts Projects</b></li> <li>• Murray &amp; Roberts Marine</li> <li>• Wade Walker</li> </ul>	<ul style="list-style-type: none"> <li>• Genrec</li> <li>• Energy Fabrication</li> <li>• UCW</li> </ul>
<b>Construction Products SADC</b>	<ul style="list-style-type: none"> <li>• Murray &amp; Roberts Steel</li> <li>• Hall Longmore</li> <li>• Much Asphalt</li> </ul>	<ul style="list-style-type: none"> <li>• Roda</li> <li>• Ocon Brick</li> <li>• Technicrete</li> </ul>
<b>Cementation Group</b>	<ul style="list-style-type: none"> <li>• Murray &amp; Roberts Cementation</li> <li>• Cementation Canada</li> <li>• RUC Cementation</li> </ul>	
<b>Middle East</b>	<ul style="list-style-type: none"> <li>• Murray &amp; Roberts (Contractors) Middle East</li> <li>• Murray &amp; Roberts Contractors (Abu Dhabi)</li> </ul>	<ul style="list-style-type: none"> <li>• Johnson Arabia</li> </ul>
<b>Clough Limited</b>	<ul style="list-style-type: none"> <li>• Clough Limited</li> </ul>	
<b>Corporate</b>		<ul style="list-style-type: none"> <li>• Murray &amp; Roberts Properties</li> <li>• Murray &amp; Roberts Concessions</li> </ul>





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**European study of projects > £100m suggests significant opportunities for improvement. The study observed 111 projects delivered between 1920 to 2000, and revealed the following:**

- Generally no improvements of cost and time overruns from 1920 to 2000<sup>1)</sup>
- Cost overruns: 40 – 80%<sup>1)</sup>
- 30% of construction was rework<sup>2)</sup>
- Labour utilization only at 40 – 60%<sup>2)</sup>
- Accidents 3-6% of project cost<sup>2)</sup>
- Material wastage 10%<sup>2)</sup>

**Main reasons for poor estimates:**

- Over-optimism in initial cost estimate<sup>1)</sup>
- Poor contingency costing<sup>1)</sup>
- Trying to get the project “green light” by unrealistic costing<sup>1)</sup>

*Source: Heathrow's Terminal 5, Sharon Doherty, 2008*

*1) Flybbjerg, Bruzelius and Rothengatter*

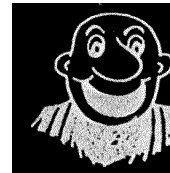
*2) The Rethink Construction task force*





# Contractor's Perspective...

1  
Excitement & Euphoria



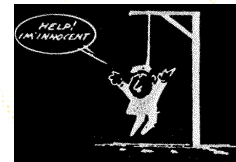
2  
Disenchantment



3  
Search for the Guilty



4  
Punishment of the Innocent



5  
Distinction for the Uninvolved



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# Success Stories

## Case Study: North Sea Oil & Gas\*

Operator	Project	Type	TIC	Saving
BP	Andrew	Field Development	£300m	19.6%
BP	ETAP	Field Development	£900m	22%
Shell	ETAP	Field Development	£112m	16-24%
Conoco	Jupiter	Platform	£30m	14.4%
British Gas	Interconnector	Pipeline	£316m	20%

*\*Projects in late 1970s to 1980's*

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## Success Stories

### Case Study: Heathrow Terminal 5

- Over 20 years in making, 7 years in implementation
- Budget £4.3billion
- 50000 people and 20000 companies
- 147 subprojects clustered in 18 projects
- Mainly “brown field” site – 260 hectares
- Daily logistics for 8000 people
- Excellent HSE and quality culture
- Completed on time (March 2008) and within the budget

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# Success Stories

## Case Study: Mozal 1, Aluminum Smelter

- Aluminium Smelter First Phase: 253 000 tpa
- Project Value US\$ 1,182 billion
- 140 hectare site
- Duration 27 months, 6 months ahead of schedule
- US\$100 million saving
- Management team - 380 people
- Labour force peaked at 9 000
- 20 million construction workhours
- 70% of the labour force was Mozambican
- Workforce trained in various workplace skills and in HSE issues
- International Project of the Year Award in 2001

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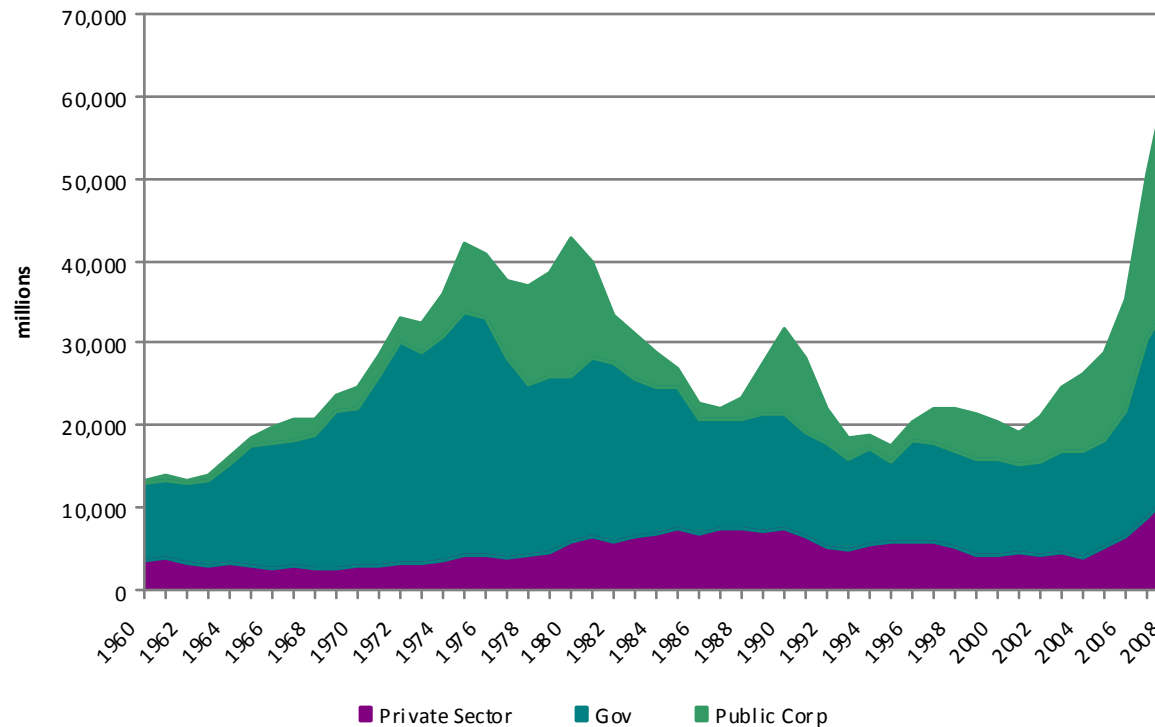
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# Industry Realities

## Construction Works Stacked Contribution per Client (2000=100)



***A steady supply of Public Sector Fixed Capital Investment Programmes is critical for a sustainable and prosperous Construction Industry***

Source: SAFCEC

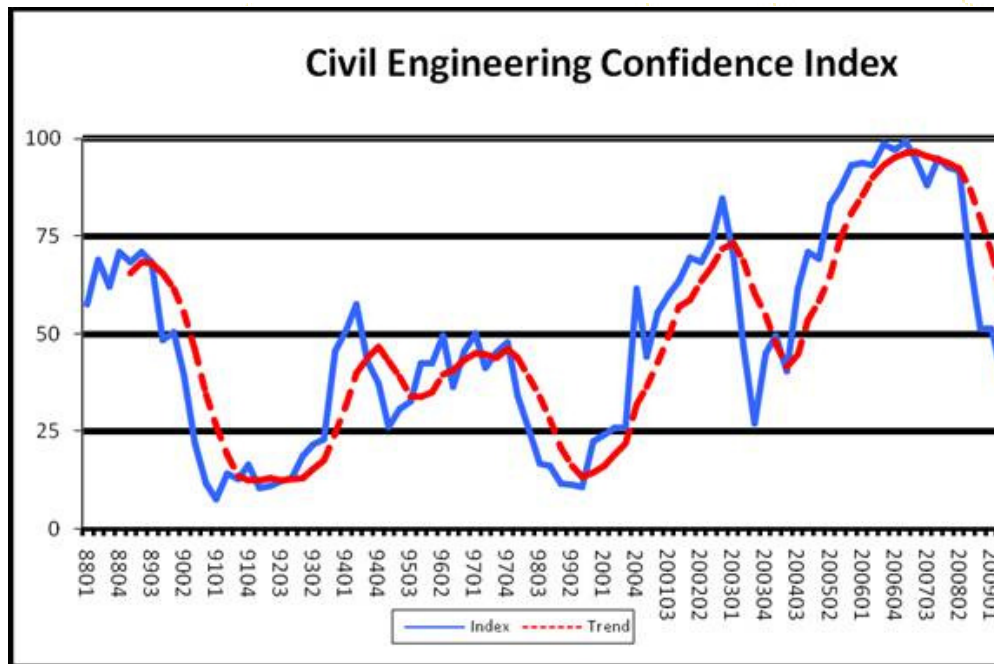
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# Industry Realities

“The Confidence Index reflect a pessimistic mood in the industry and declined 43% over the 12 months ending in June 2009, compared to the same period in the previous year.”



*“The Civil Engineering industry is starting to show major concerns regarding existing order books unwinding in an environment where major clients are postponing projects or re-scoping existing projects.”*

Source: SAFCEC State of the Industry Report 2009, Q3

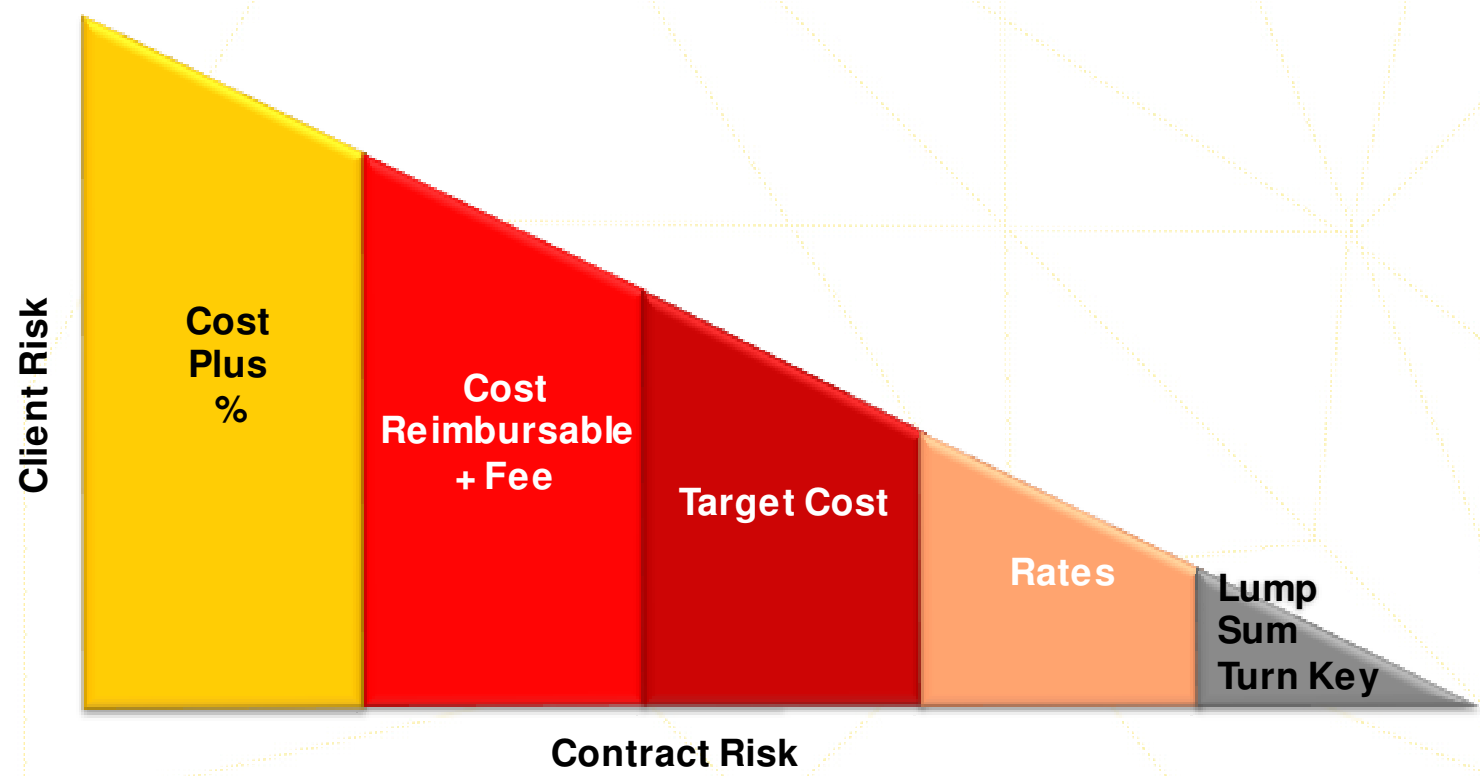
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# Contracting Risk

*“It is vital for the decision maker to understand the contract risk so that they are able to make the right contract decision. Choose the contract that matches the Risk” Henry Laas*



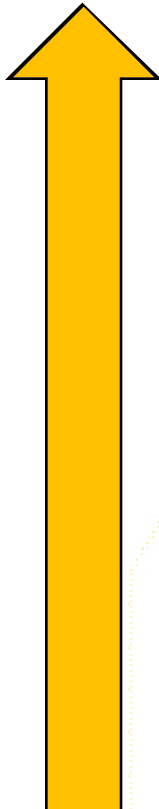
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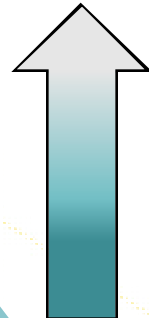
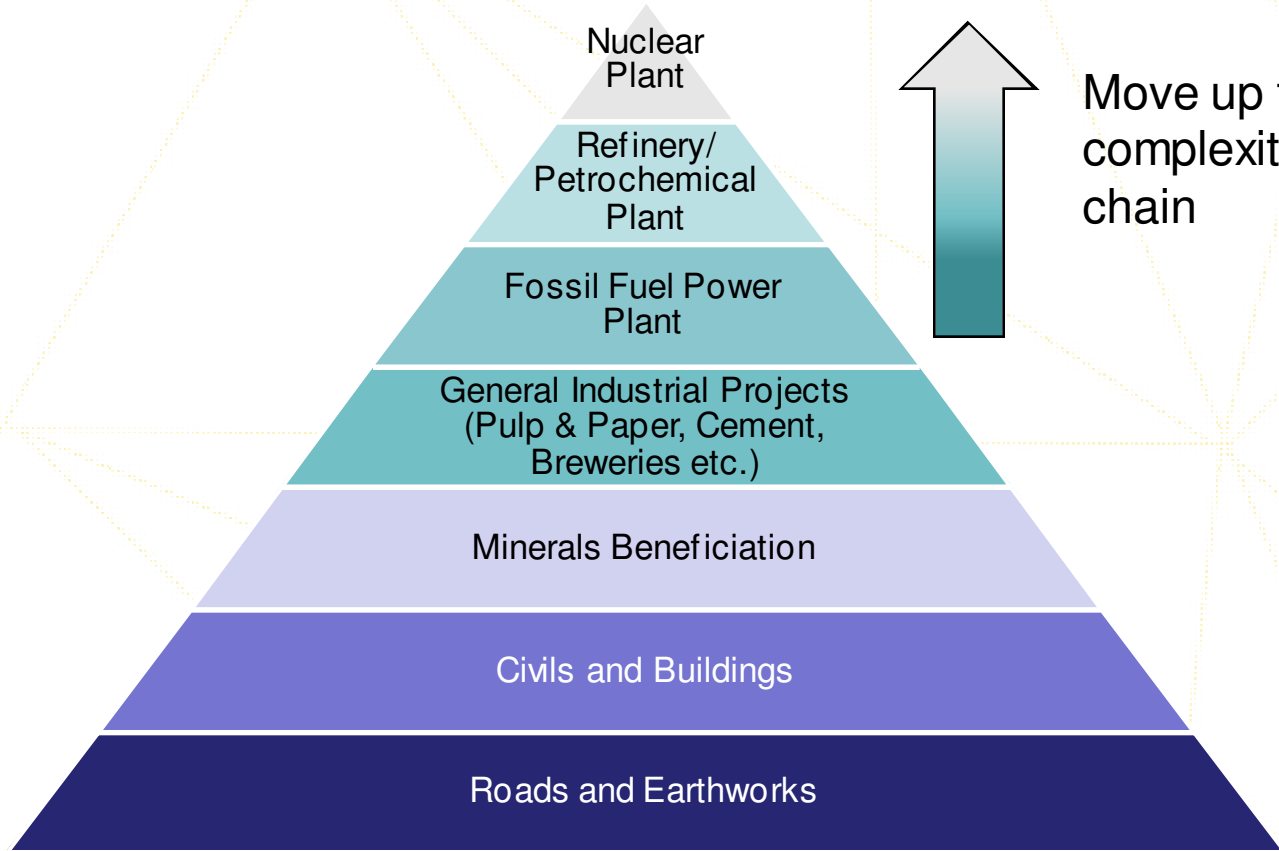


**Murray & Roberts  
Projects**

**Project Complexity  
(readiness for nuclear)**



Level of project complexity

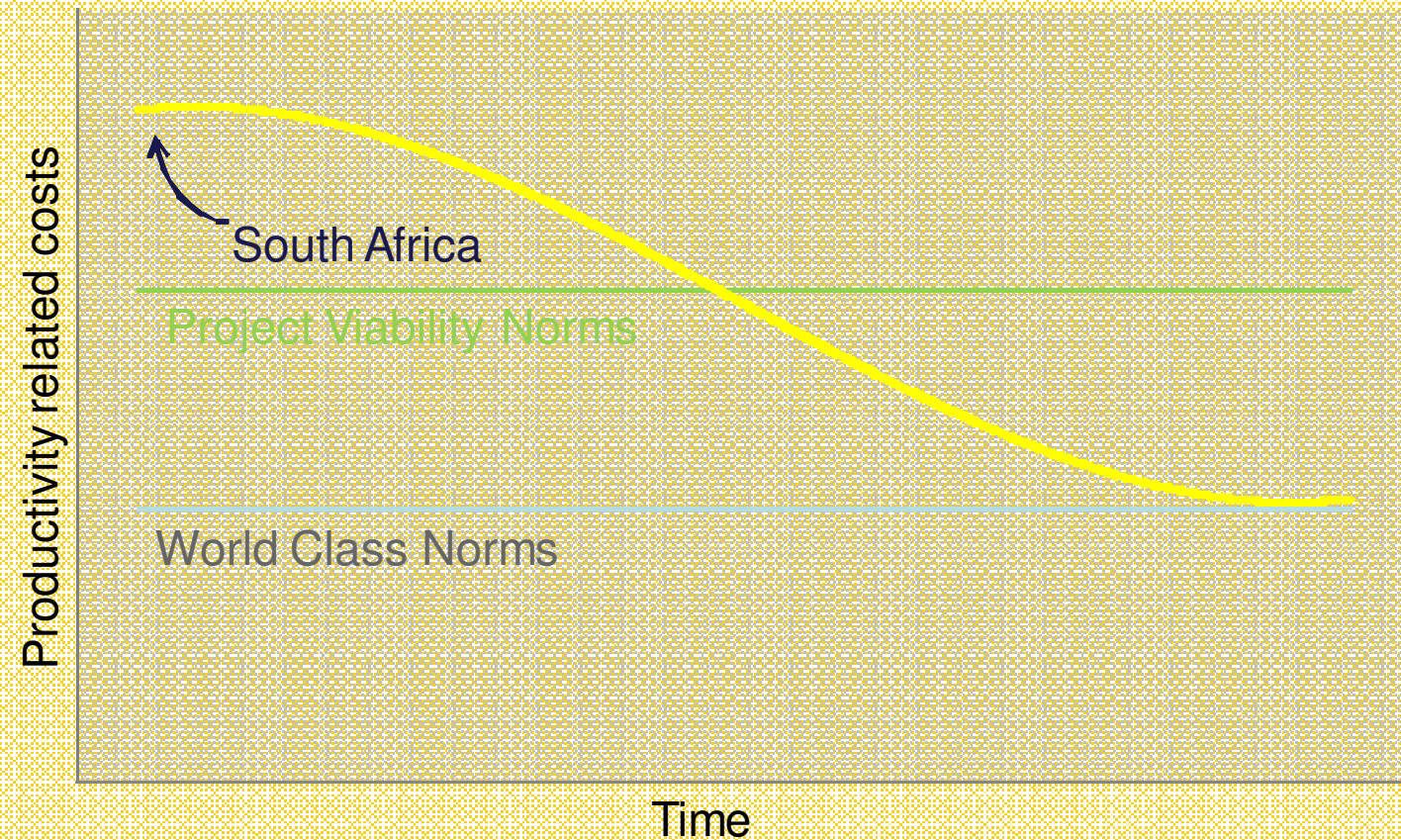


Move up the  
complexity  
chain

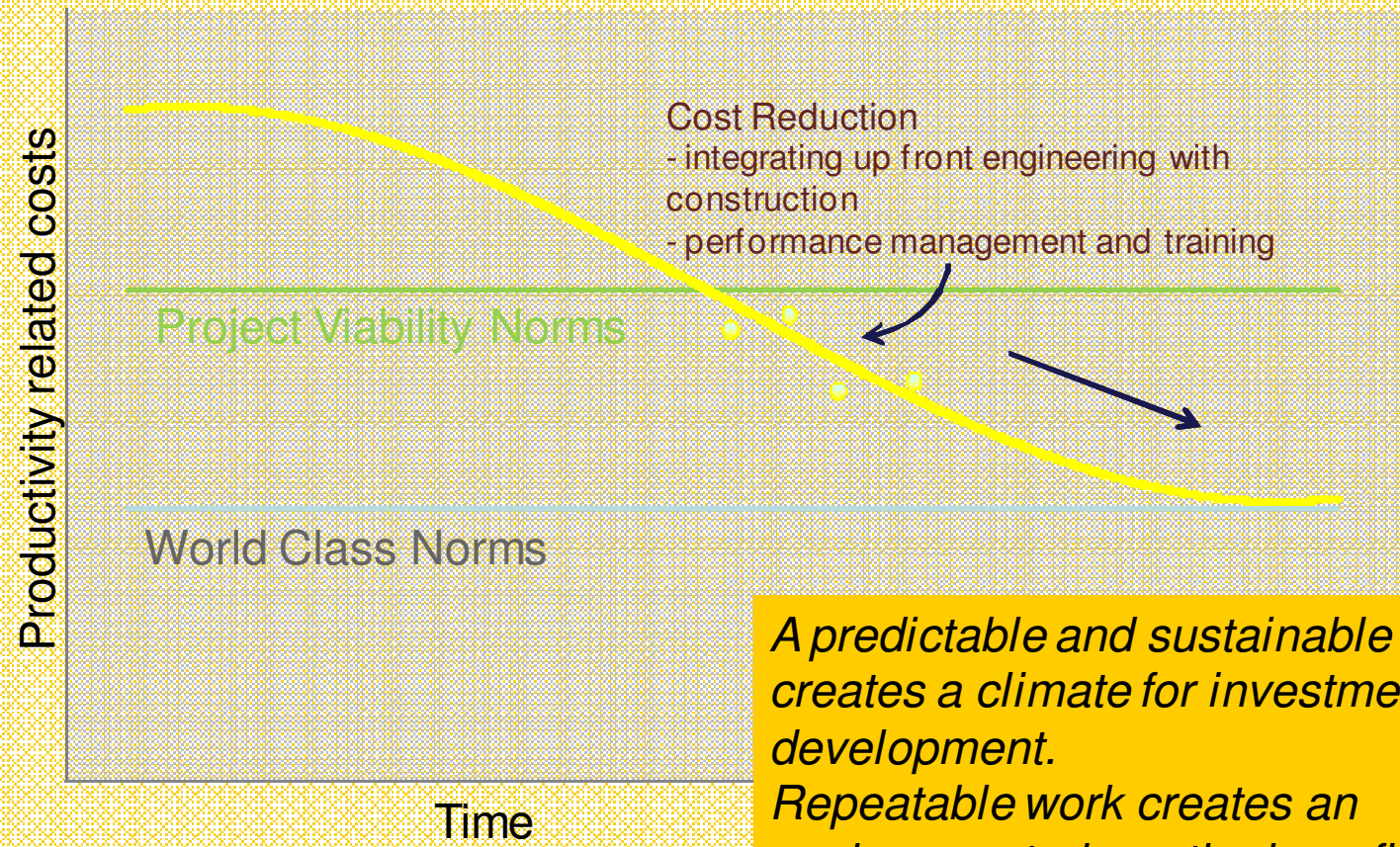
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# Productivity related costs



# Productivity related costs



*A predictable and sustainable workload creates a climate for investment in skills development.  
Repeatable work creates an environment where the benefits of a learning curve could come into effect.*





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# Proposed Successful Capital Projects Framework Principles

Critical Success Factors for competitive, sustainable and world class capital projects delivery in South Africa:

**Work Pipeline Predictability**

**Stakeholders Relationship**

**Programme & Project Management Philosophy and Approach**

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# Critical Success Factors for Capital Projects in South Africa

## Work Pipeline Predictability

- Divide the project/s in smaller components and manage as a programme
- Long term relationship
- Supply chain management
- Better planning of large projects on a country level
- Diversify – market and geographical segments





# Work Pipeline Predictability

**Continuity and predictability as opposed to an ad-hoc approach ultimately influences contracting behaviour, relationship and performance**

Contractor Motivations	High	Goals between the contactor and client not aligned High returns Conservative relationship Award focused High innovator Repeat business	Repeat business Value added activities Development and learning Alignment of business objectives Joint risk management Community and social investment Solution driven and Trust develops Best people ensures quality outcome
	Low	Main objective is revenue and profit Confrontational/ traditional Business not client/ long term focused Exploit the contract Money before reputation People provided as they are available (no training and development)	Certainty of workload Risk adverse Product focused with client being priority Higher volumes and lower margins Early warnings Some training and development
		Short Term/ Opportunistic	Long Term/ Strategic

Duration/ Relationship

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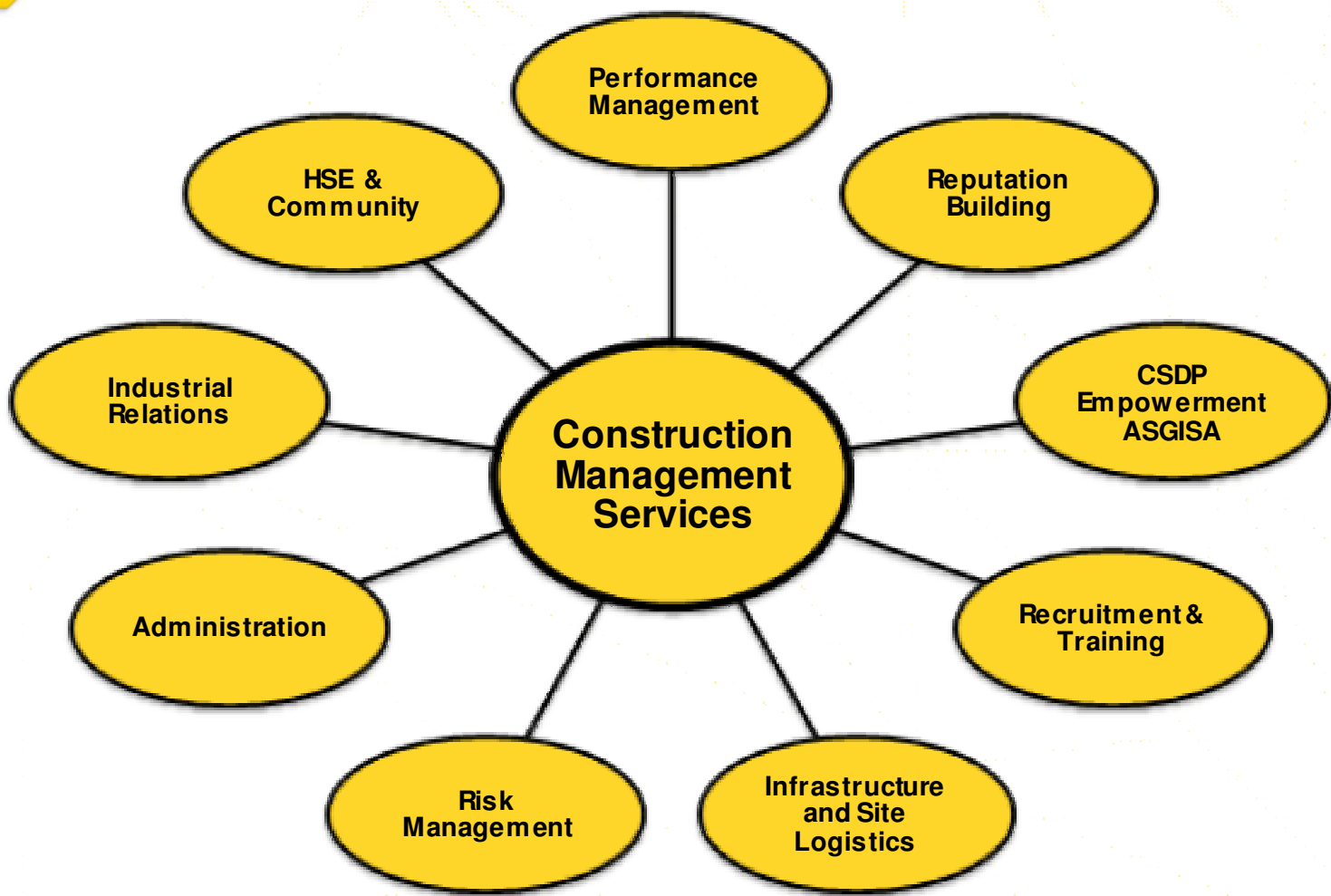
## Stakeholders Relationship

- Projects executed on alliancing/ partnering basis – common objectives for all stakeholders
- Sharing of risk & reward proportional to influence of cost – win or lose together
- No finger pointing - success or failure is a joint responsibility irrespective of who caused it (“Play the ball, not a player!”)
- Community involvement
- Mutual trust, openness and co-operation





# Construction Management Services



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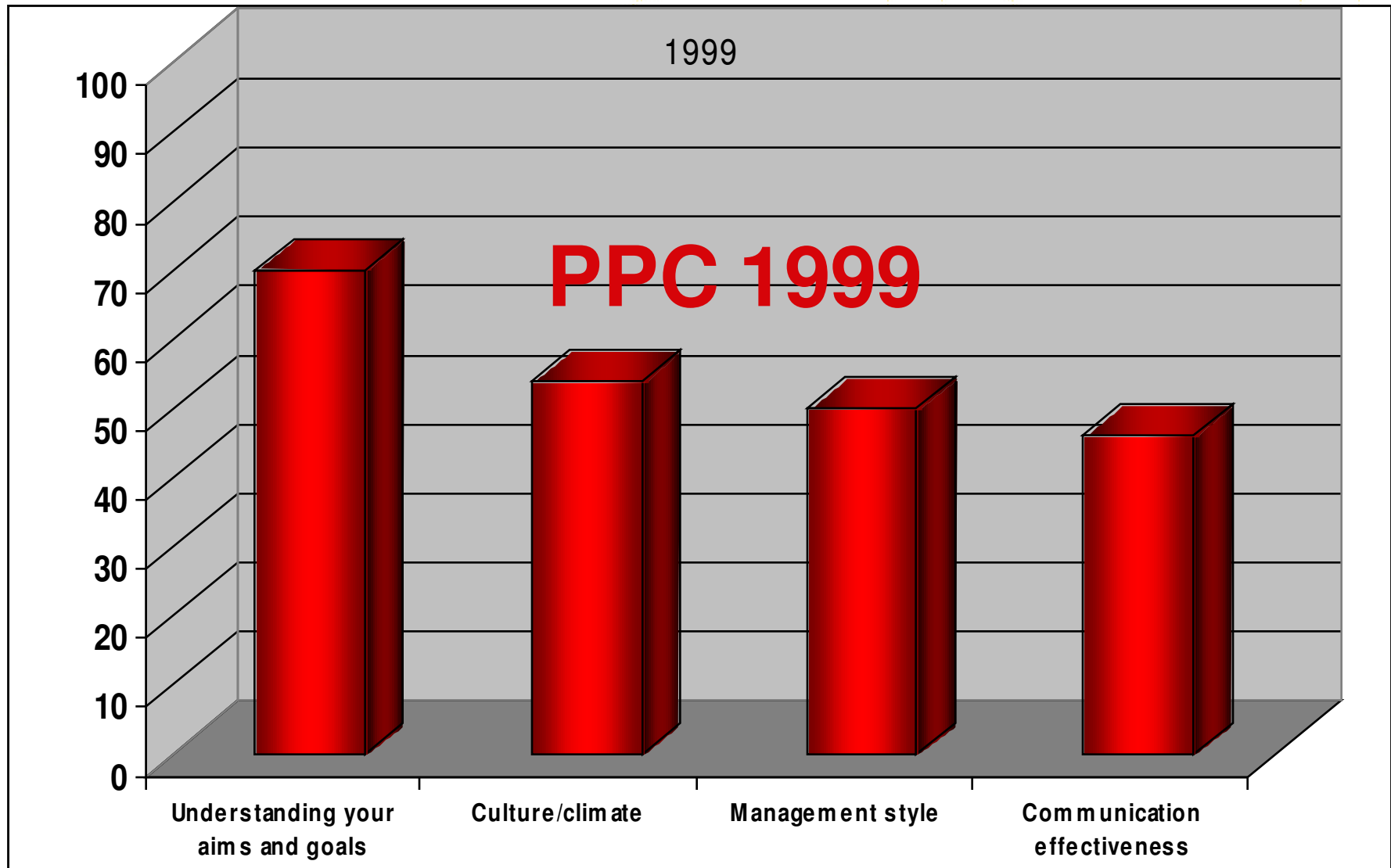


**“The research indicated that highly engaged employees tried up to 57% harder, and were 87% less likely to leave than employees with low levels of engagement”**

*Source: 2004 research by the corporate leadership council*

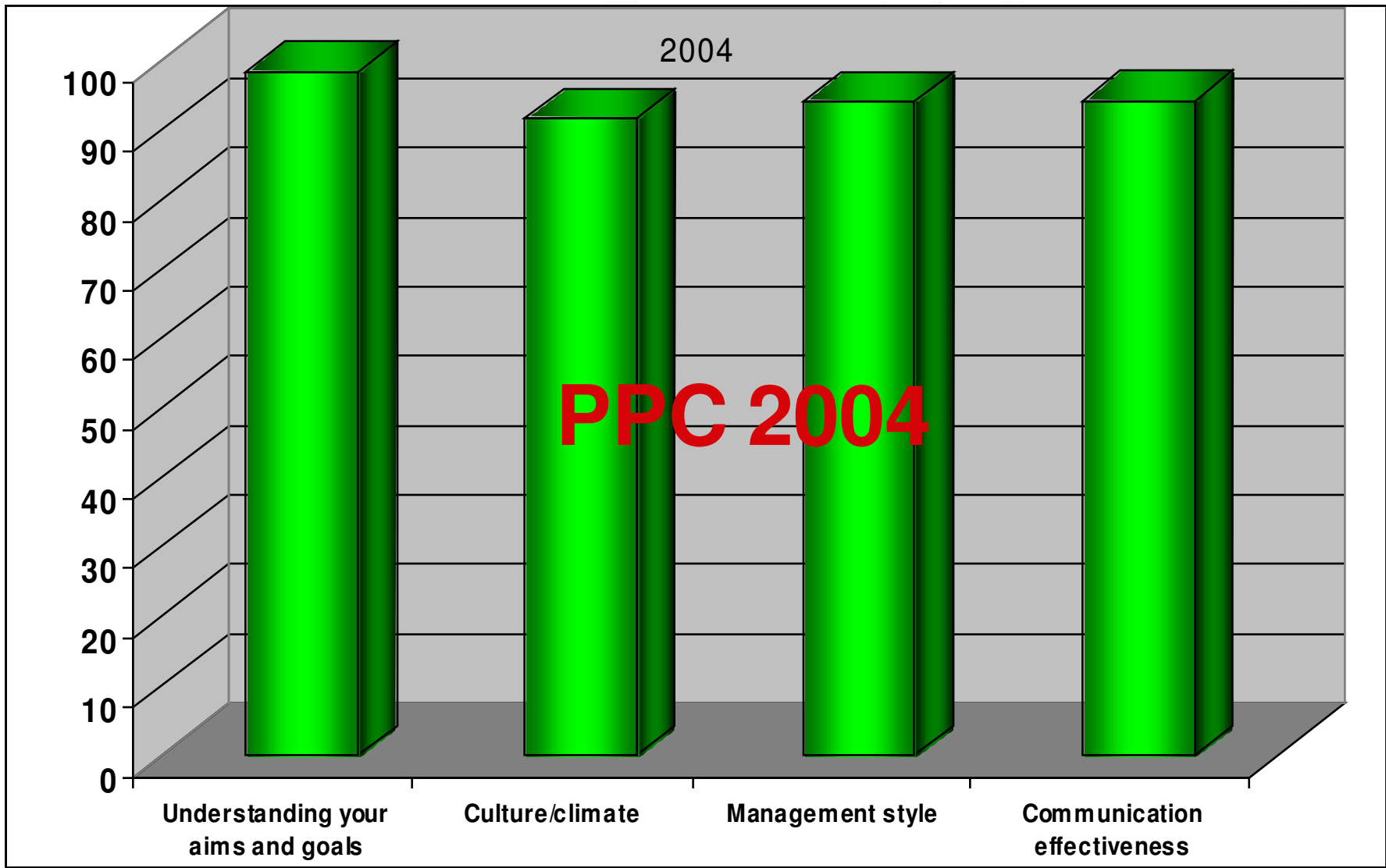
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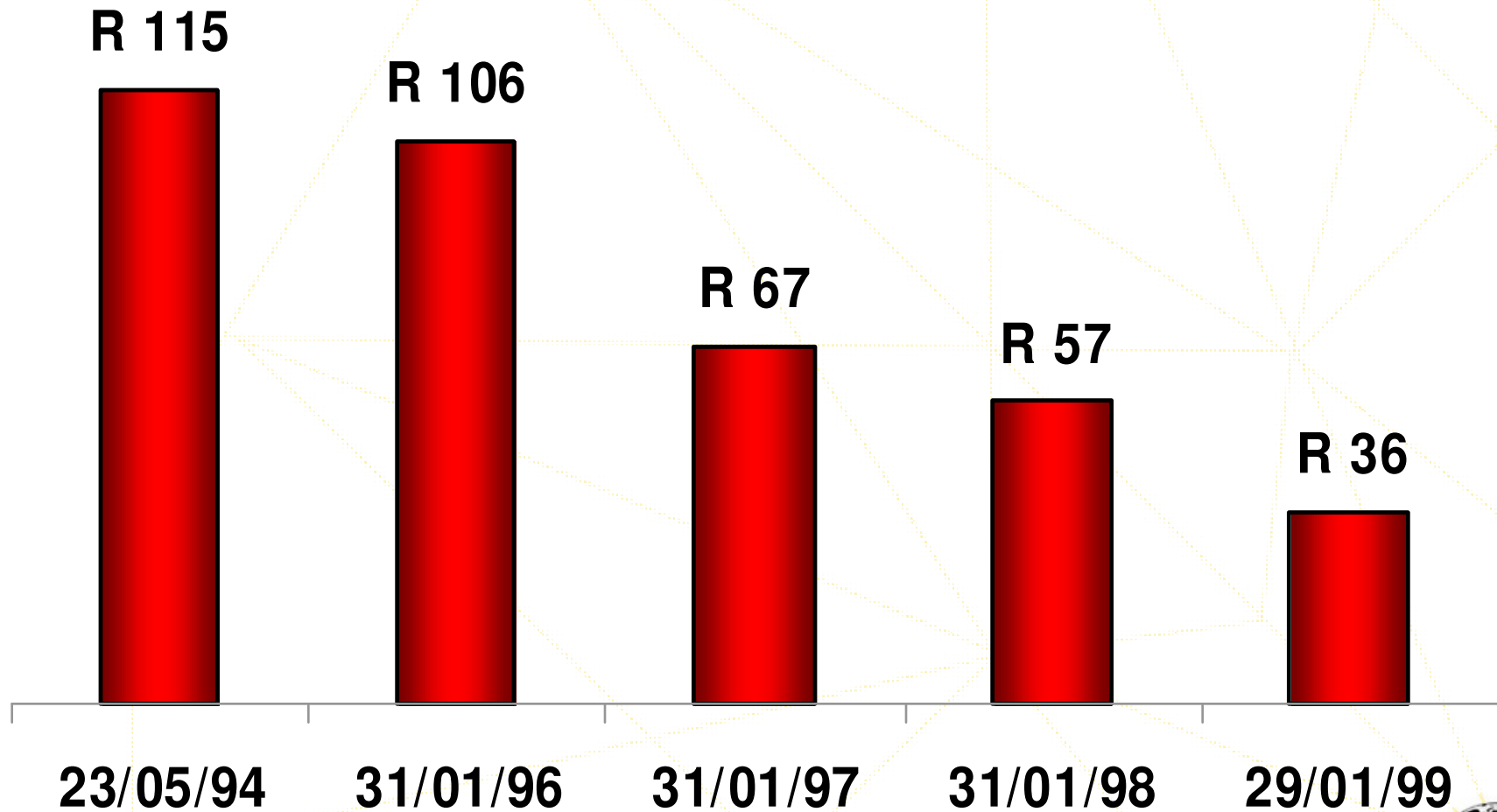




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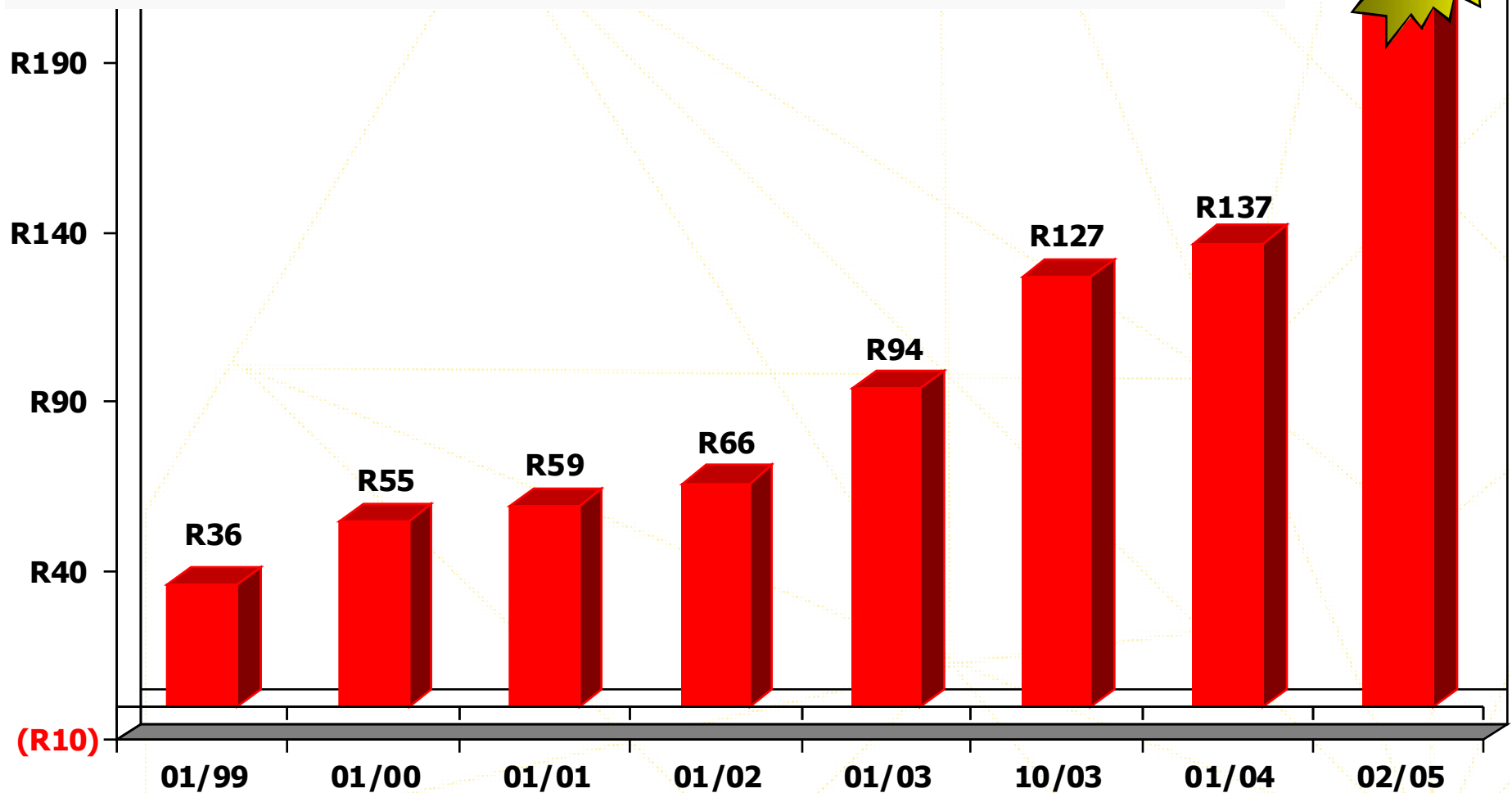
# FROM THIS IN 1999 . . . .



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# TO THIS IN 2005 . . .



(R10)

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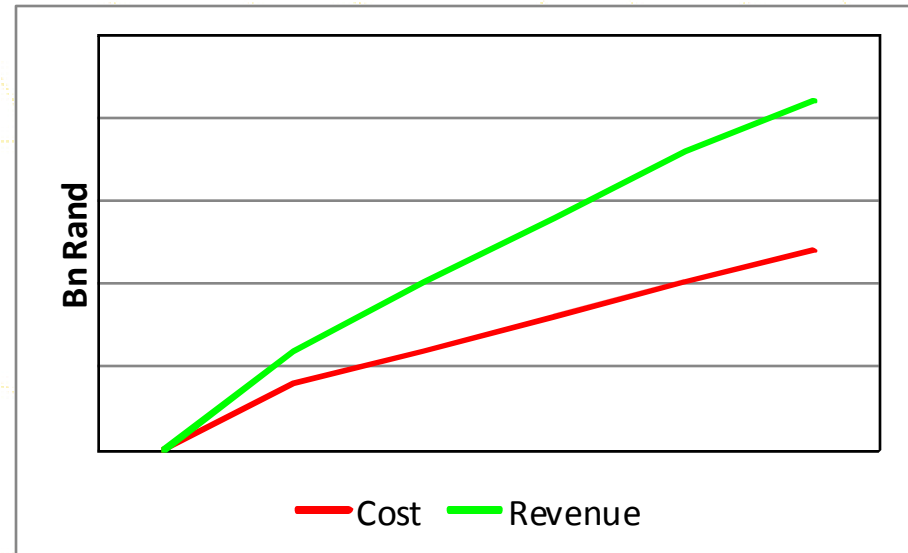
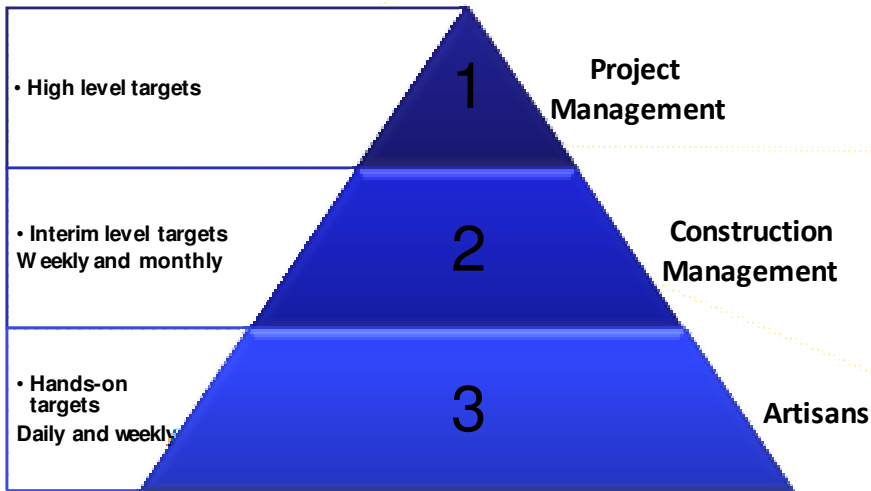


# Employee Communication and Engagement

## Requirements for Performance:

- 1) Skill
- 2) Will and
- 3) Drill (using a structured methodology) through Communication and Engagement!

### Project Team Talks: Primary Targets & Controls



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# Critical Success Factors for Capital Projects in South Africa

## Programme & Project Management Philosophy and Approach

- Early involvement of key partners and joint master planning
- Early End-user involvement
- Target Budget and Contingencies jointly agreed
- No “person for person” marking!
- Early design freeze and effective change management
- Performance management in place
- Central Risk Prevention and Management
- Central project planning
- Strong Quality and HSE culture
- Project Framework and Labour Management in place





**In conclusion...**

***Successfully planned and executed Large Capital Projects  
offer opportunity for South Africa and industry  
to develop skills and capacity  
on a competitive and sustainable basis***

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**THANK YOU**

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