



**SAIMM**  
THE SOUTHERN AFRICAN INSTITUTE  
OF MINING AND METALLURGY  
**ZIMBABWE BRANCH**

# ***Business Turnaround Strategies***



**Tirwirei Bingudza**  
***BINMAK CORPORATION***

**BINMAK SOLUTIONS**  
*We Deliver On Our Promise*



# Investopedia

“A **turnaround** is the financial recovery of a company that has been performing poorly for an extended time.”

To effect a **turnaround**, a company must acknowledge and identify its problems, consider changes in management, and develop and implement a problem-solving strategy”

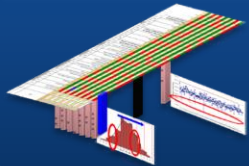
# Agenda



Introduction to Binmak



Turnaround Strategy Steps



Operational Turnaround Strategies



Case Studies



Operational Turnaround Results



# The Binmak Solutions....



We partner with your teams and equip them to implement the World renowned ISO55000 Physical Asset Management Standard to reduce risk to the business processes by increasing equipment reliability.



We partner with your teams to Define, Measure, Analyse, Improve, and Sustain Results Driven Operational Performance

We partner with your teams to ensure that the Right Work is done at the Right Time in the Right Way for predictable, consistent business results and to deliver to expectations



# Who We Are



The ***Binmak Solutions*** team has over 25 years of experience in the mining industry gained across diverse geographies, several commodities and various mining value chain steps. With significant experience in:

- Capital Project Management
- Integrated Business Planning
- Strategy Development
- Business Performance Improvement
- Physical Asset Management
- Information Technology Systems

The ***Binmak Solutions*** team brings:

- A unique and powerful combination of expertise and experience.
- Broad, yet in-depth knowledge which gives us a holistic view grounded in solid experience
- Ability to help operations perform better and optimise capital and resource deployment
- International experience covering South Africa, USA, Chile, Brazil, The Philippines, The Republic of Ireland, Namibia, Botswana and Zimbabwe which gives us perspectives and insights that bring significant value to our diverse range of clients.



# The Binmak Approach



## Five factors differentiate *Binmak Solutions*:

- **Results as the means, as well as the end:** We use progressive success to breed more success while building confidence and capability of the client.
- **Delivery of value – not just recommendations:** We partner with our clients to improve Key Value Drivers.
- **Speed used to mitigate risk:** We help organizations improve performance in short time frames - often less than 100 days - and then leverage these achievements to inform larger transformations.
- **Integrated approach across organisational hierarchy, value chain & disciplines:** We work across the organisation in order to create broad ownership for the process, the results and for the changes that are critical to achieve desired outcomes.
- **Development of our clients:** We believe that sustainability depends on capability hence we strive to empower our clients through training and coaching.



# Our Clients



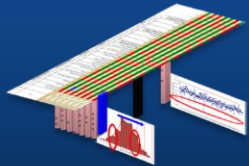
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# Turnaround Strategy Steps

- Define The Problem**
  - Define The Solution – Questions are the answers
- Company Strategy**
  - Vision, Mission, Values
- Financial Strategy**
  - Breakeven Analysis
  - Balance Sheet Restructuring
  - Free cashflow
  - Financial Forecast
- Marketing Strategy**
  - Revenue Streams
  - Client Retention.
- Competitive Strategy**
  - Competitive Analysis
- Management Strategy**
  - Rightsizing
  - Talent Retention Plan
- Operating Plan**
  - Performance Improvement

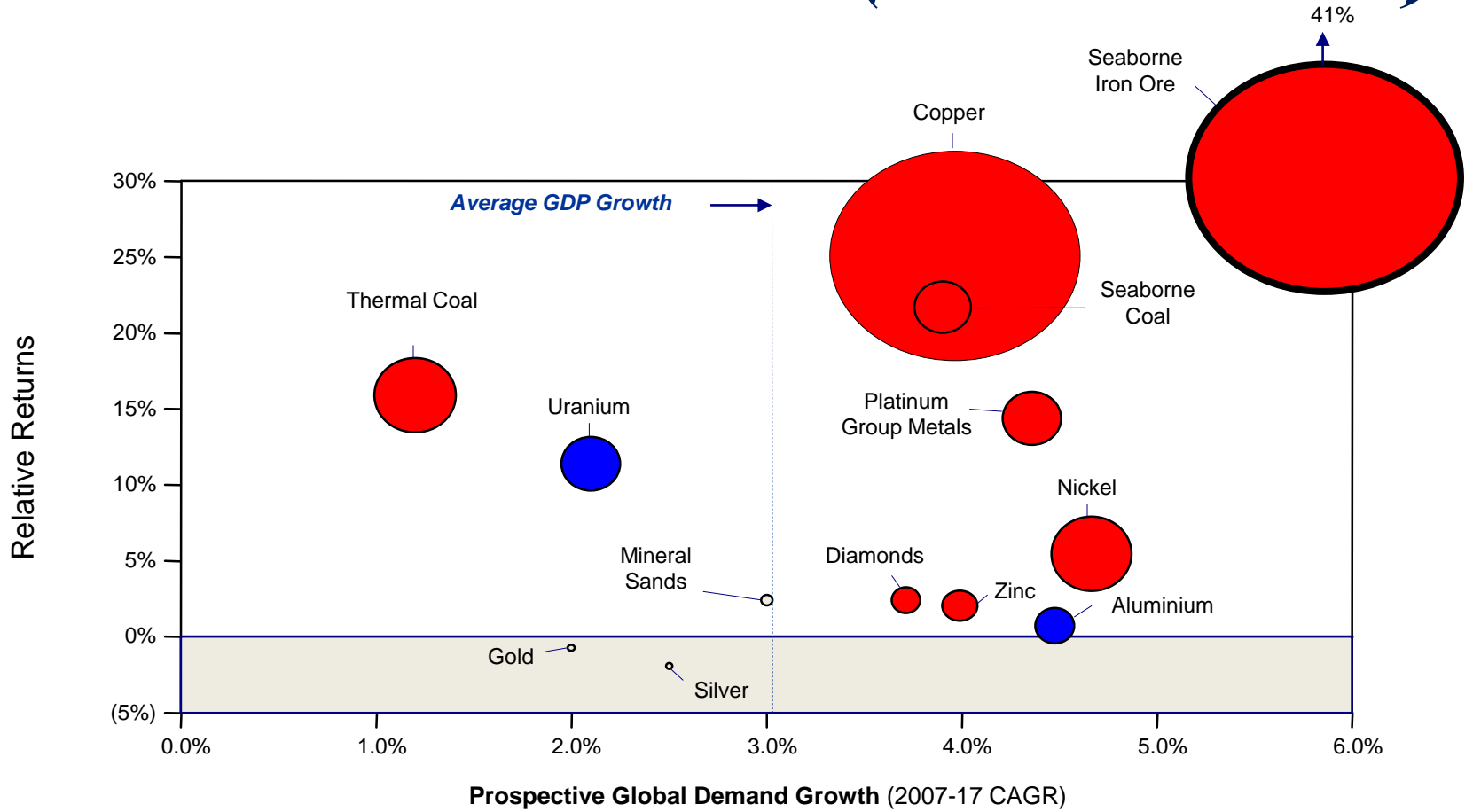


# Strategy Review Process





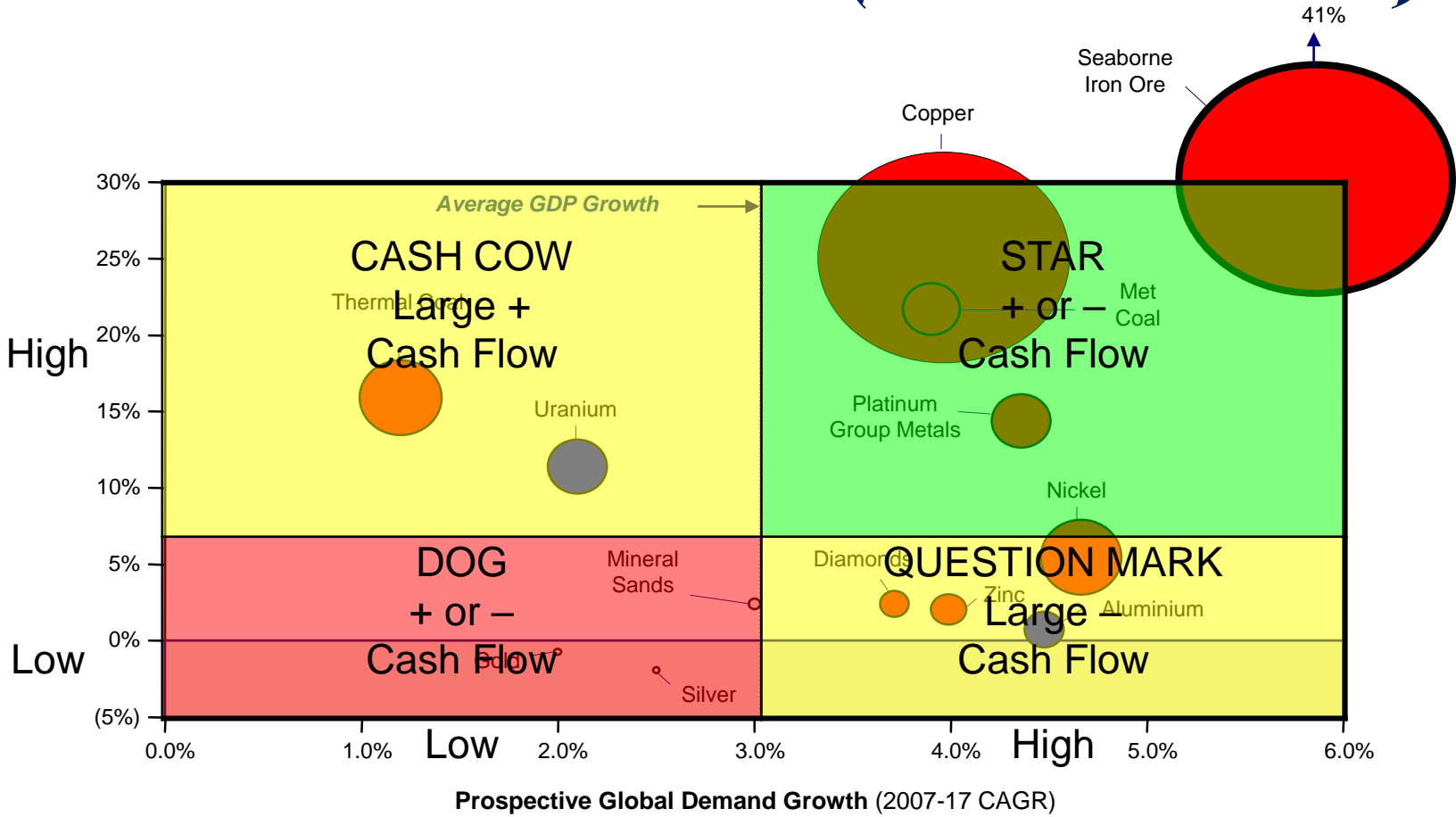
# Business Portfolio (*Illustrative*)



- = Markets in Which Anglo Participates
- = 'Un-served' Markets
- = Bubble Size Represents Avg. 2008-17 EP of c.\$560M



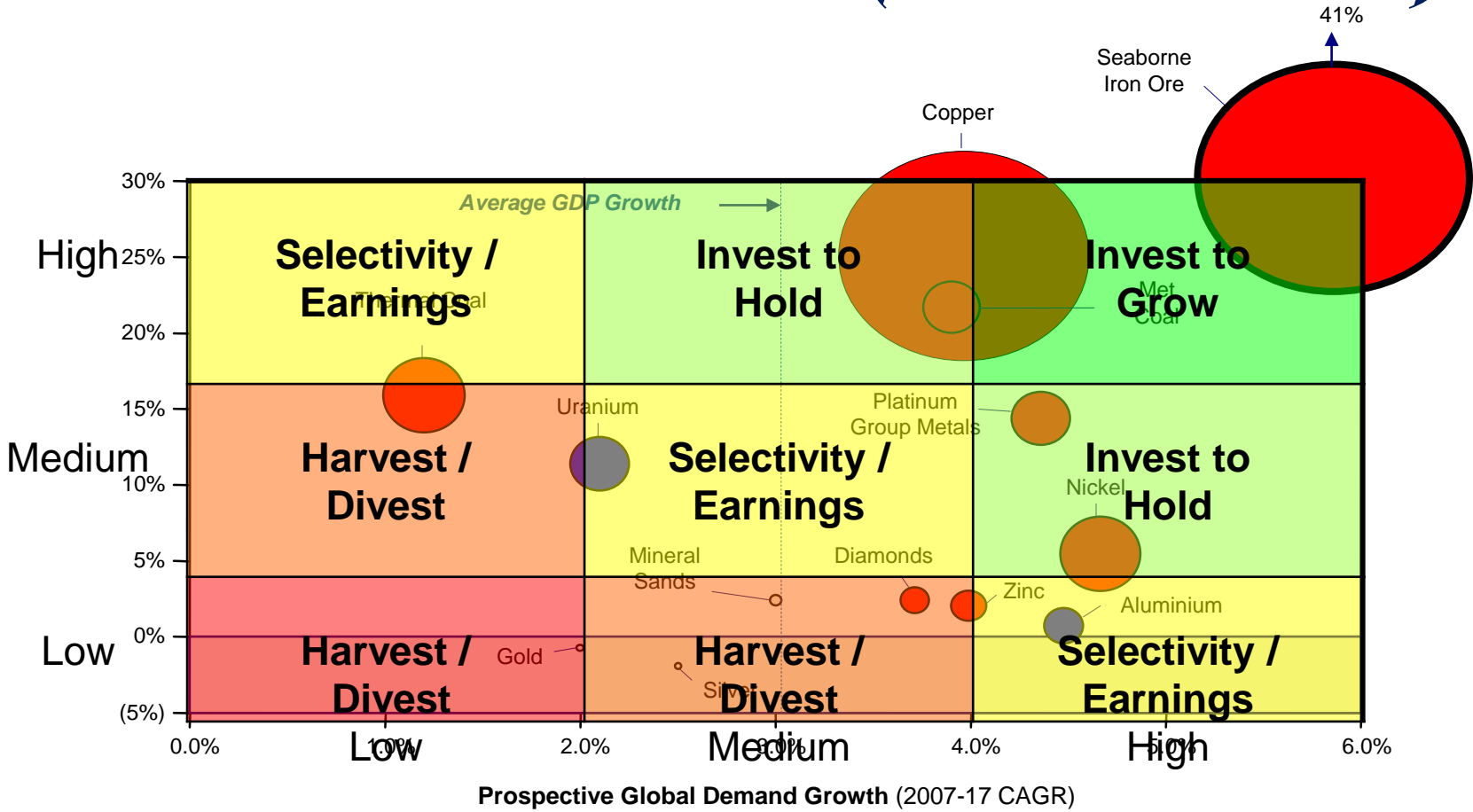
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# Business Portfolio (Illustrative)



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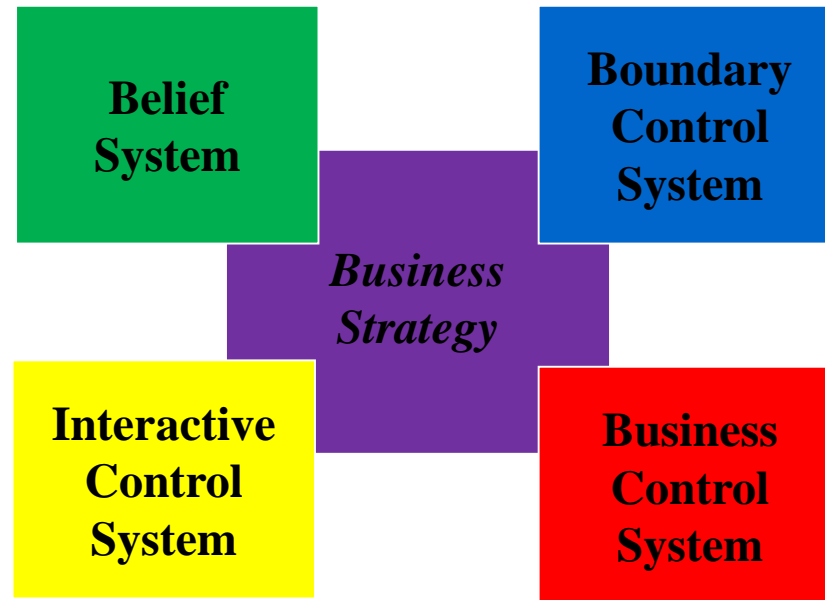
# WHAT IS THE CORRECT MEDICINE?

<p>Internal Factors</p> <p>External Factors</p>	<p><b>Strengths (S)</b> 5-10 most substantial internal strengths</p>	<p><b>Weaknesses (W)</b> 5-10 most serious internal weaknesses</p>
<p><b>Opportunities (O)</b> 5-10 most important opportunities</p>	<p><b>SO Strategies</b> Strategies that use strengths to take advantage of opportunities <b>(Growth)</b></p>	<p><b>WO Strategies</b> Strategies that take advantage of opportunities by overcoming weaknesses <b>(Turnaround)</b></p>
<p><b>Threats (T)</b> 5-10 major threats</p>	<p><b>ST Strategies</b> Strategies that use strengths to avoid threats <b>(Diversification)</b></p>	<p><b>WT Strategies</b> Strategies that minimize weaknesses and avoid threats <b>(Defensive)</b></p>



# Business Operating System

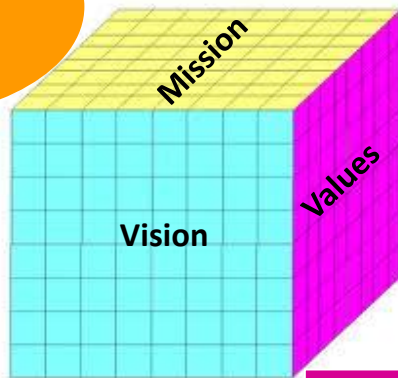
*Strategic control of a business cannot be achieved through performance measurement systems but through levers of control*



# Business Operating System

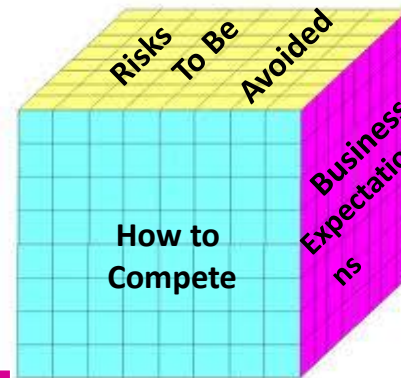
## Belief System

Strategy as a Perspective



## Boundary Control System

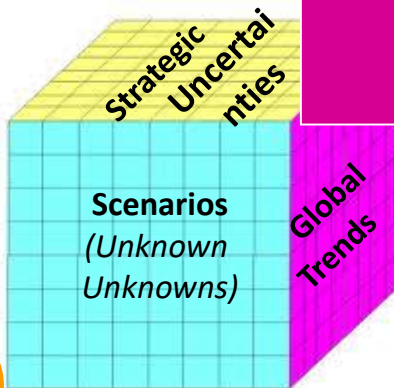
Strategy as a Position



*Business Strategy*

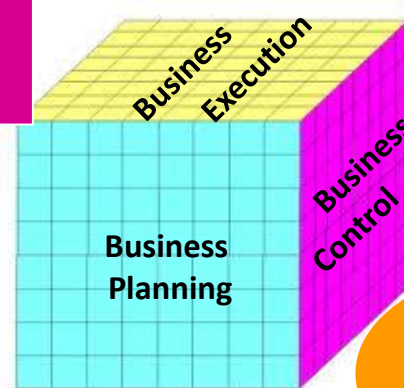
## Interactive Control System

Strategy as Patterns in action



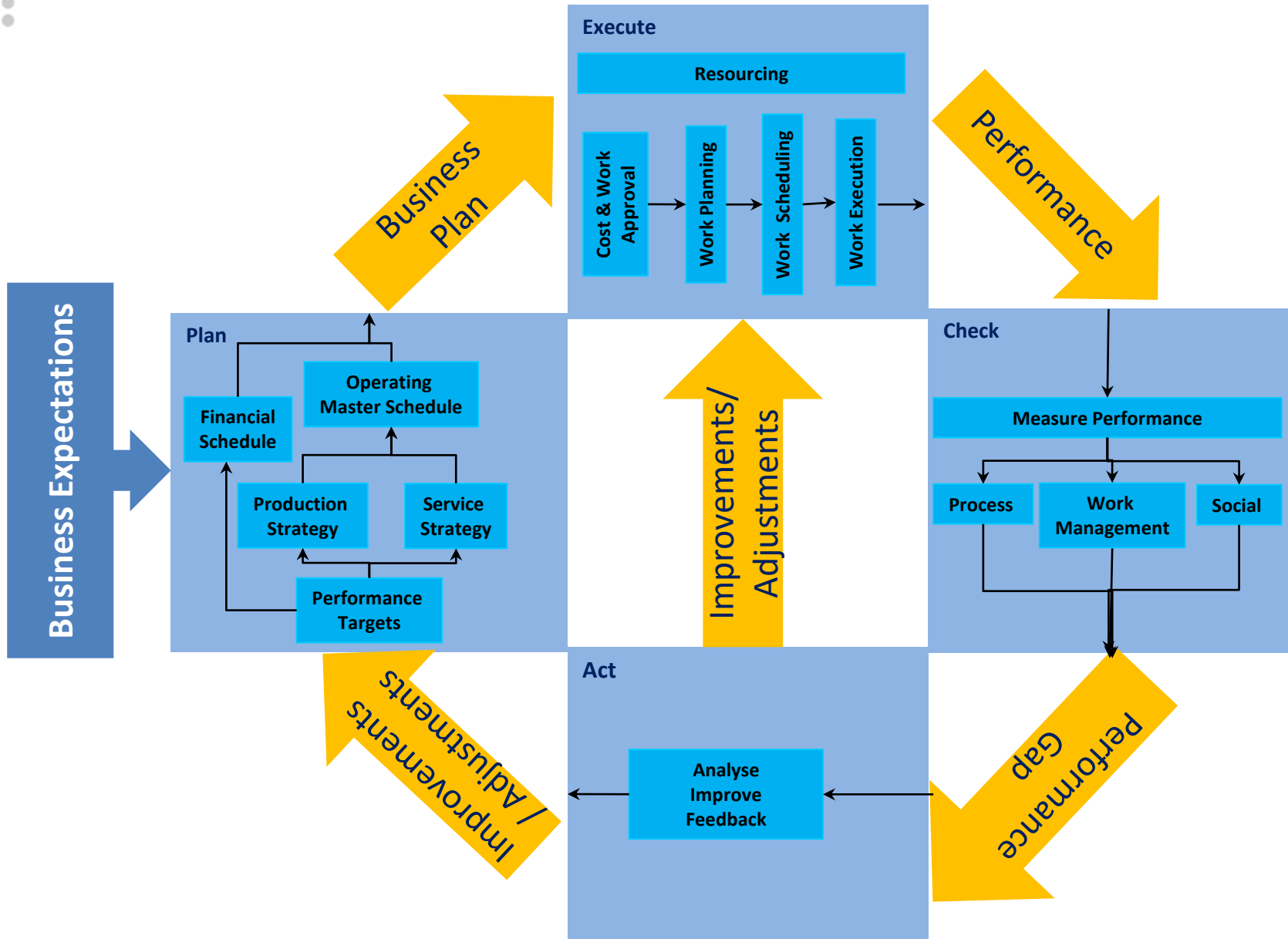
## Business Control System

Strategy as a Plan





# Business Control System

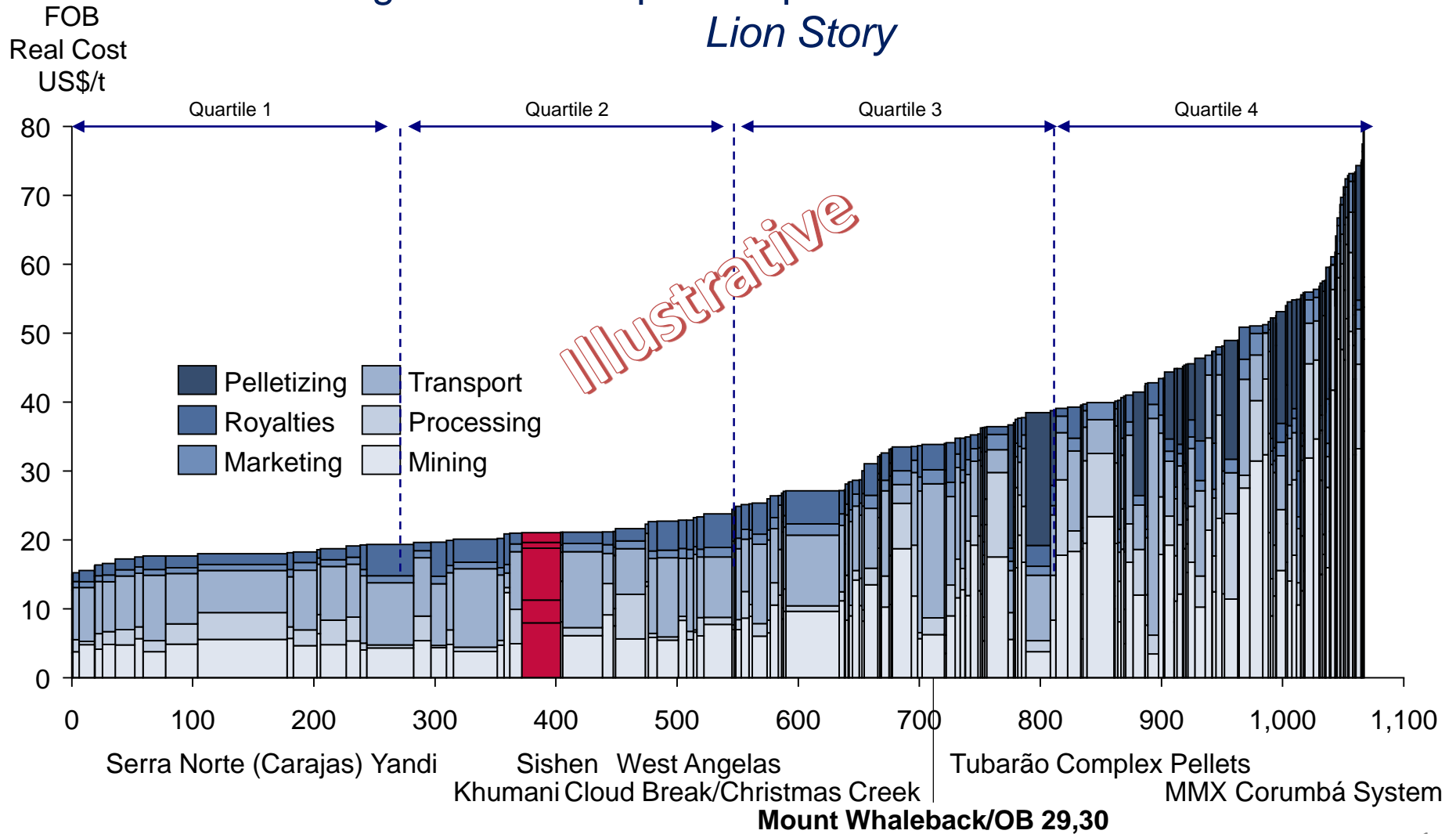




# Strategic Context

Knowing desired competitive position on cost curve is critical

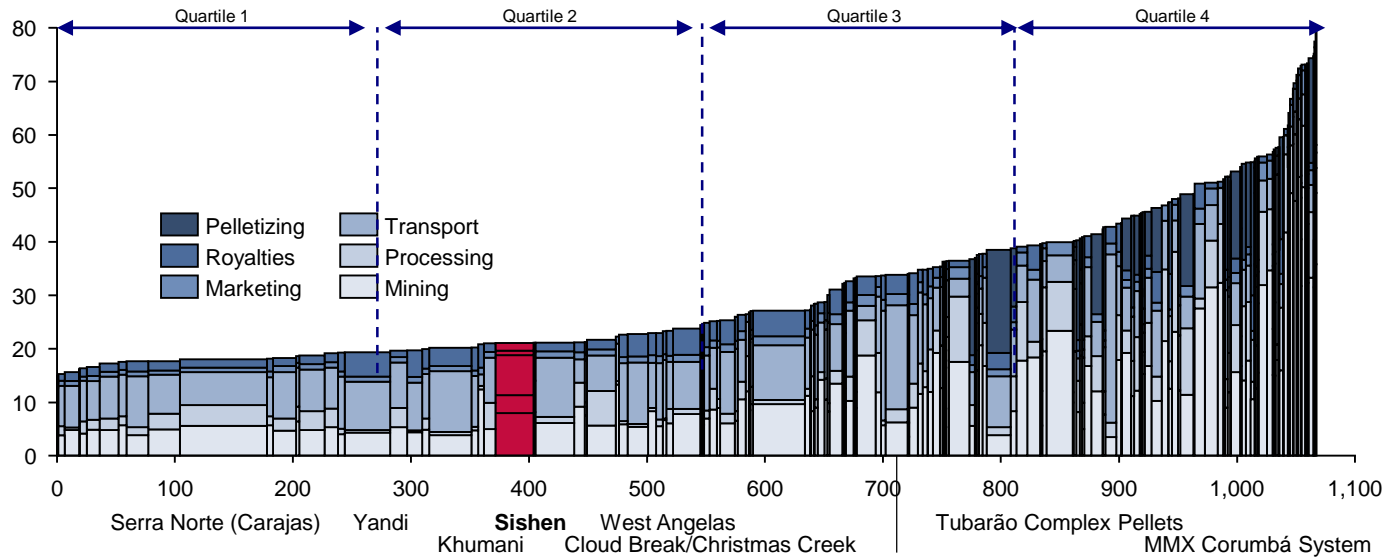
*Lion Story*



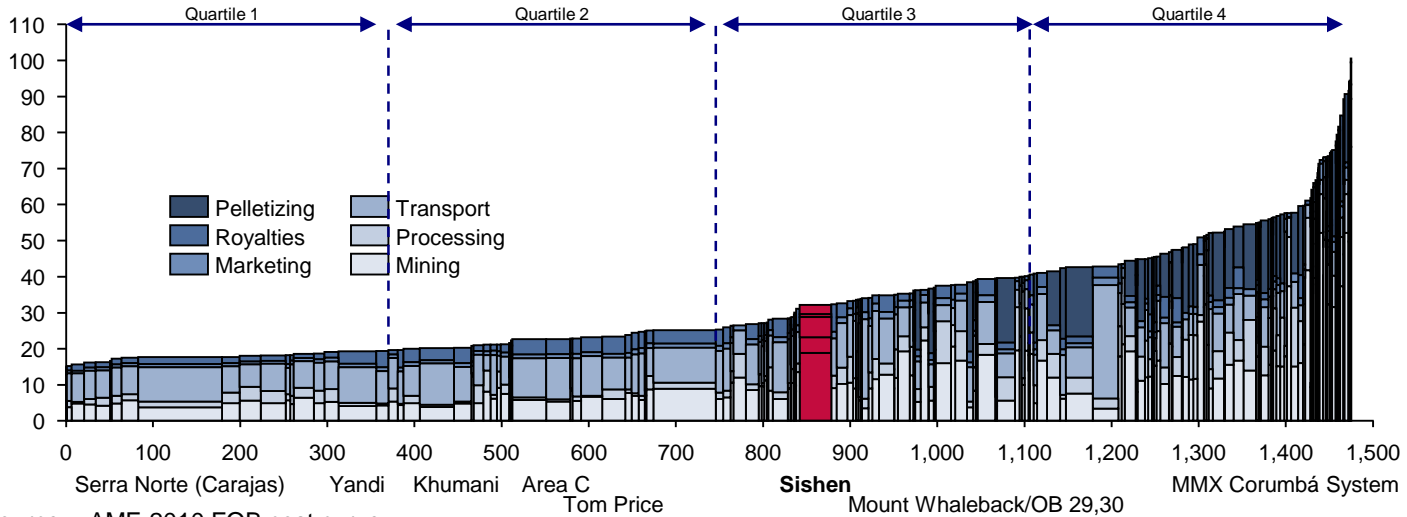
Source: - AME 2010 FOB cost curve

# Moves to third quartile ore cost curve by 2021

2017 FOB Real Cost US\$/t



2021 FOB Real Cost US\$/t



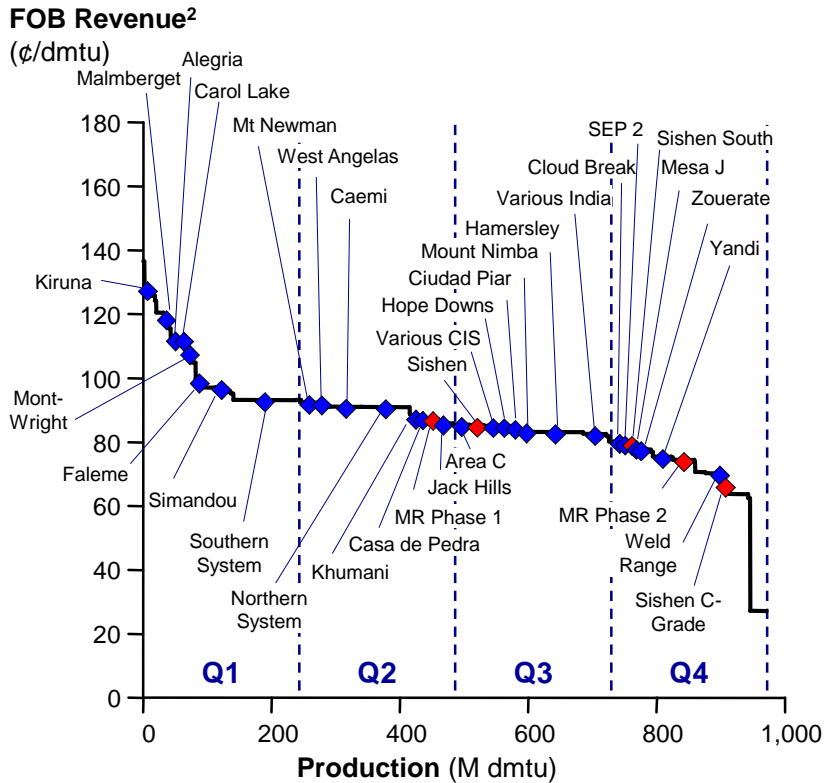
Source: - AME 2010 FOB cost curve



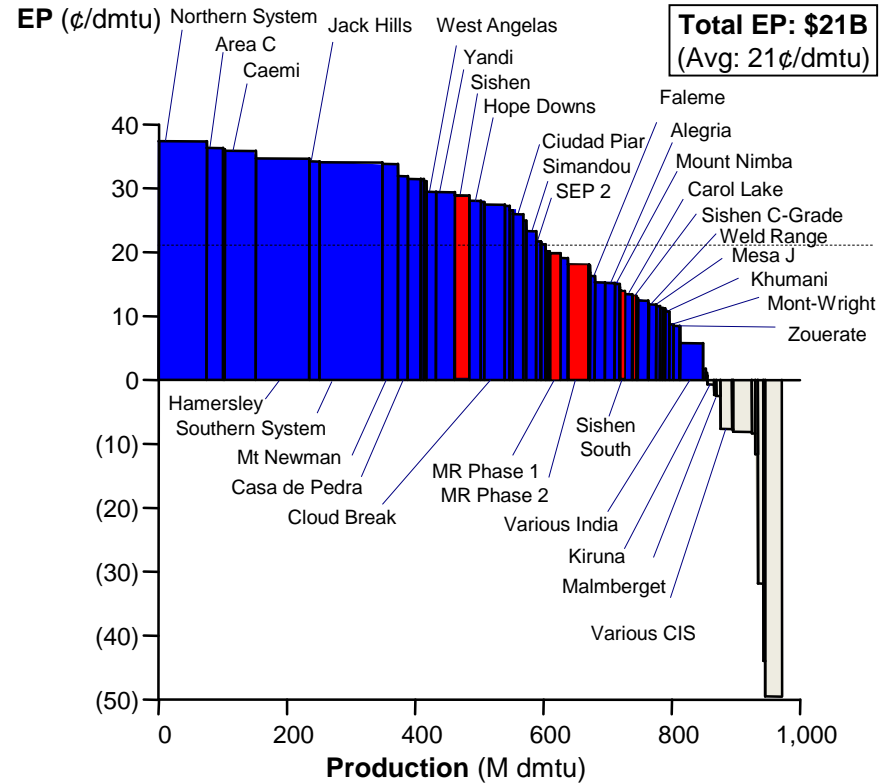
# Prospective Competitive Position

Mines are forecast to be at competitive parity in 2017, delivering 21¢/dmton

## Prospective Net Realised Turnover (2017)



## Prospective Economic Profit (2017)



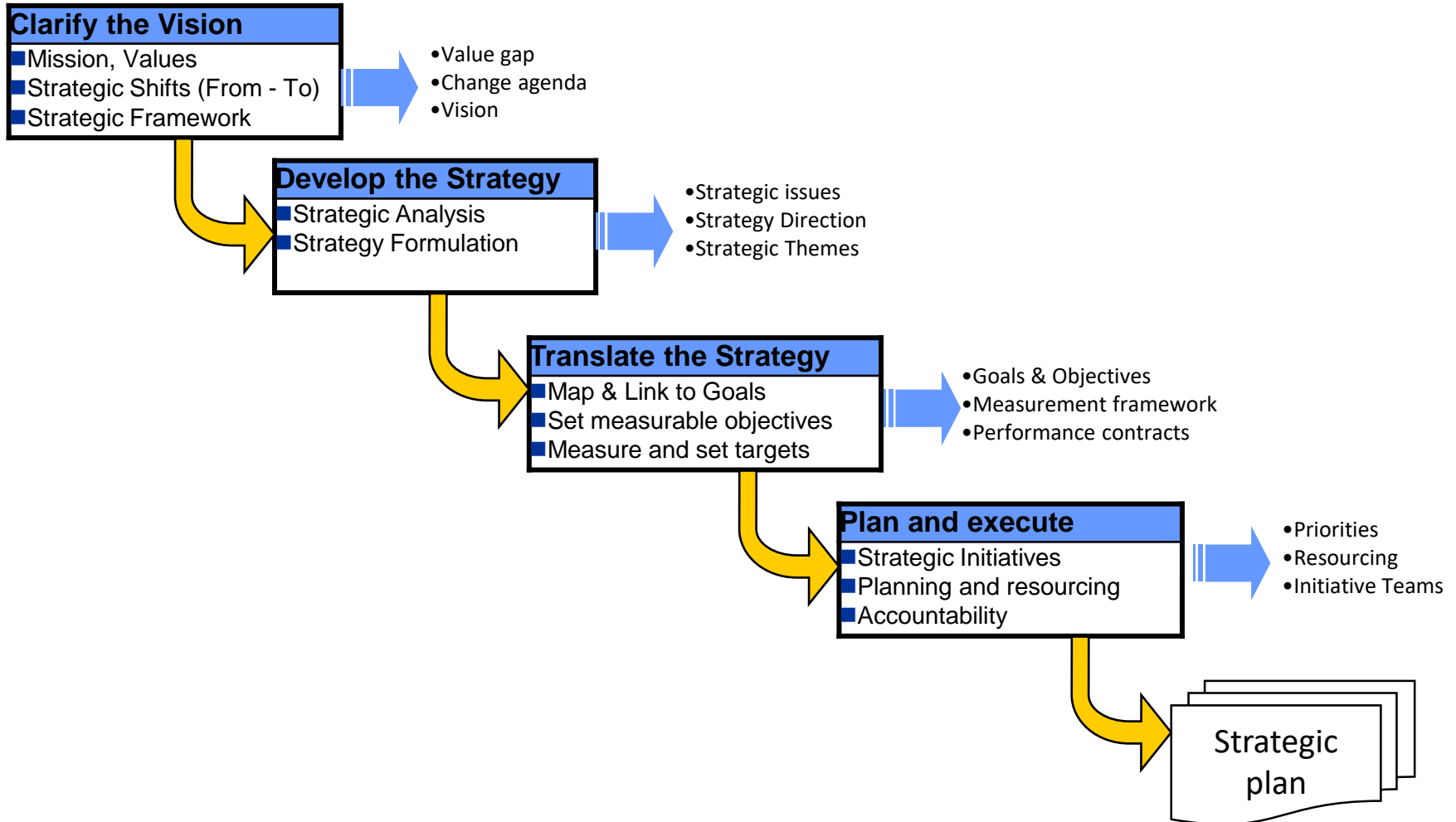
\* Captures committed and probable seaborne production; Notes: (1) 59.4% lump and 40.6% fines with 64% Fe lump and 63.5% Fe fine; (2) includes product quality premiums and discounts Royalties are included in realised revenue calculations, and excluded from business costs; (3) Effective tax rate of 36% assumed for Sishen and 33% for all other mines (4) Excludes China; Source: CRU



# EFFICIENCY VERSUS EFFECTIVENESS

		Strategic Management	
		Effective	Ineffective
Operational Management	Efficient	1 Thrive	2 Die slowly
	Inefficient	3 Survive	4 Die quickly

# Building The Strategic Plan



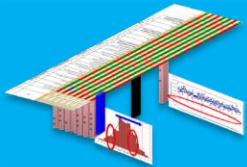
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# Why Business Performance Improvement?

*“There is a **Hidden Mine** behind every mine. Effective Asset Optimisation will unearth this **Hidden Mine**”*



***“If a company tells me they experience moving bottlenecks, my response is: You have NO bottlenecks and most of your resources have at least 30% spare capacity”***

**– Dr Eli Goldratt**



***“If you want to make money, ...  
most of your resources **MUST** be  
IDLE from time to time”***

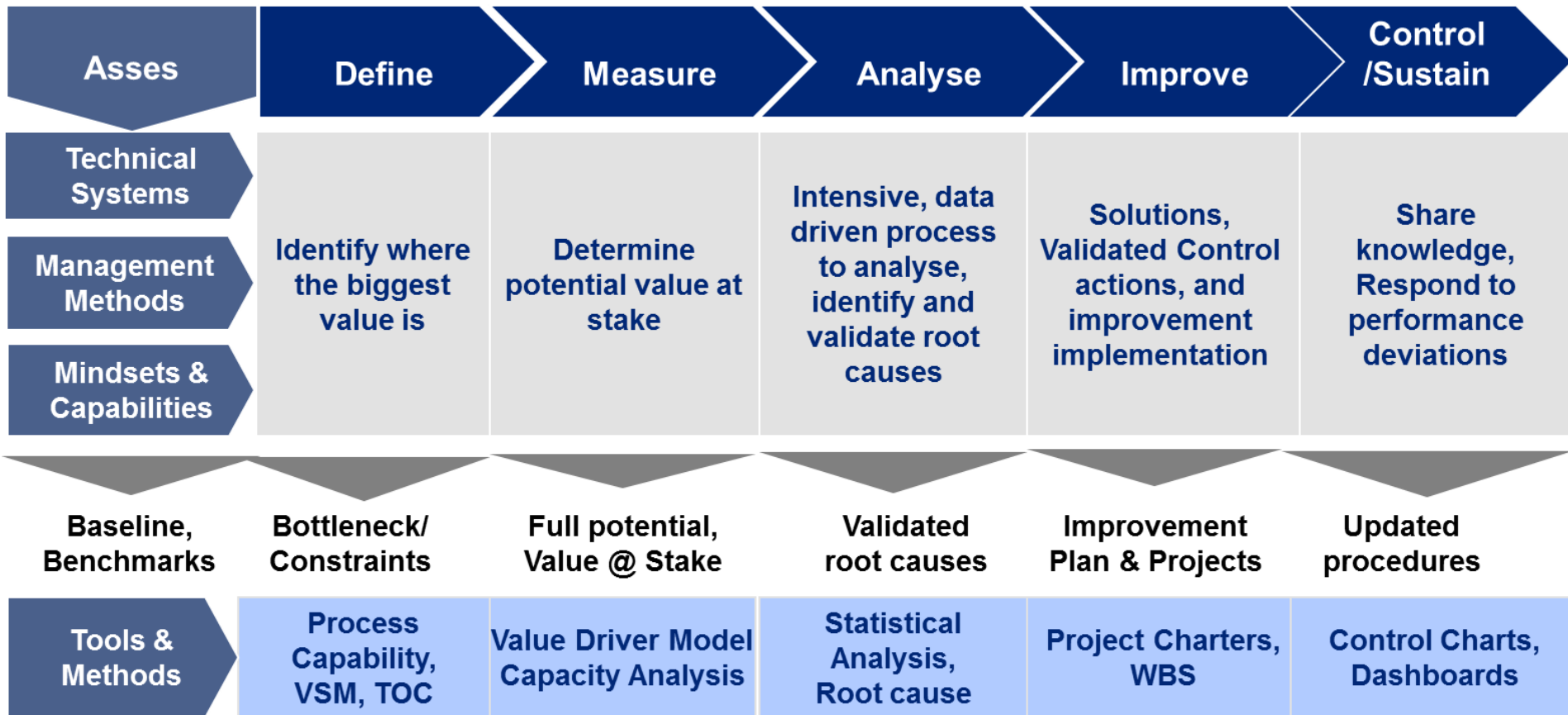
**– Dr Eli Goldratt**



***“A production chain with 80% availabilities can produce at lower unit cost than a chain with 90% availabilities”***



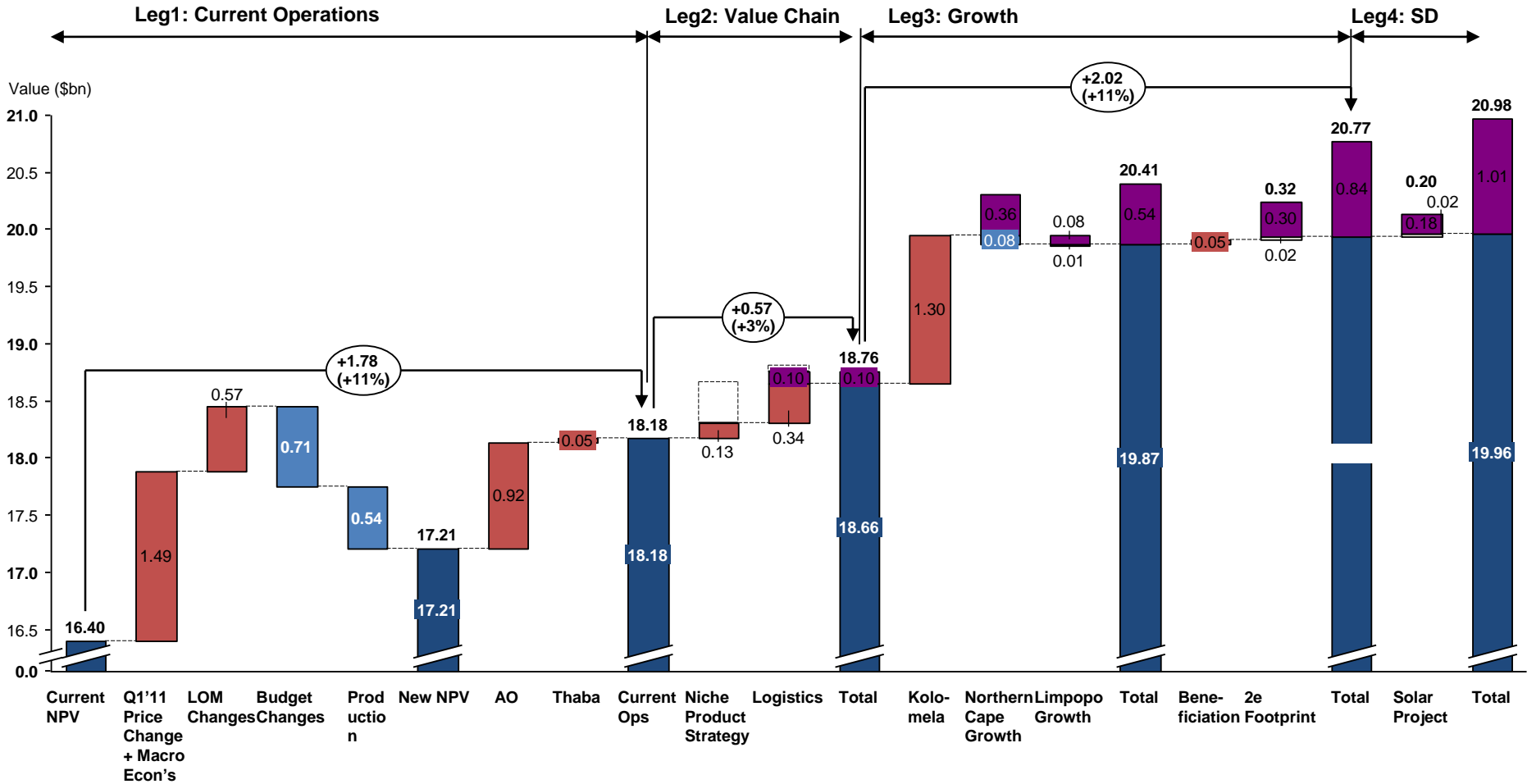
# Business Performance Improvement (BPI) Process





# Value Creation Through Strategy Delivery

## Value Waterfall



# Key Questions Addressed by Value Optimisation



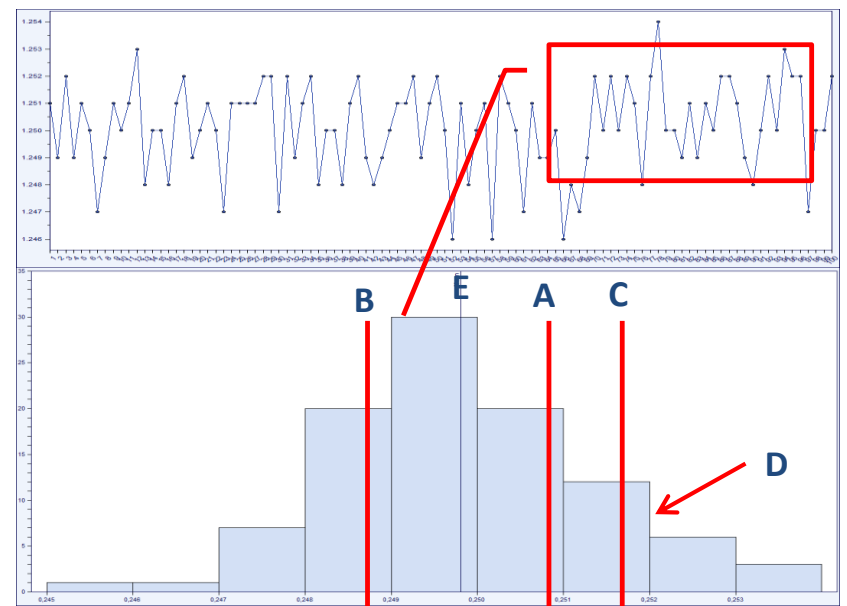
1 What is the realistic business expectation?

2 What is the realistic business aspiration?

3 How should the asset be strategically managed to optimise value potential?

4 Is there material risk in delivery?

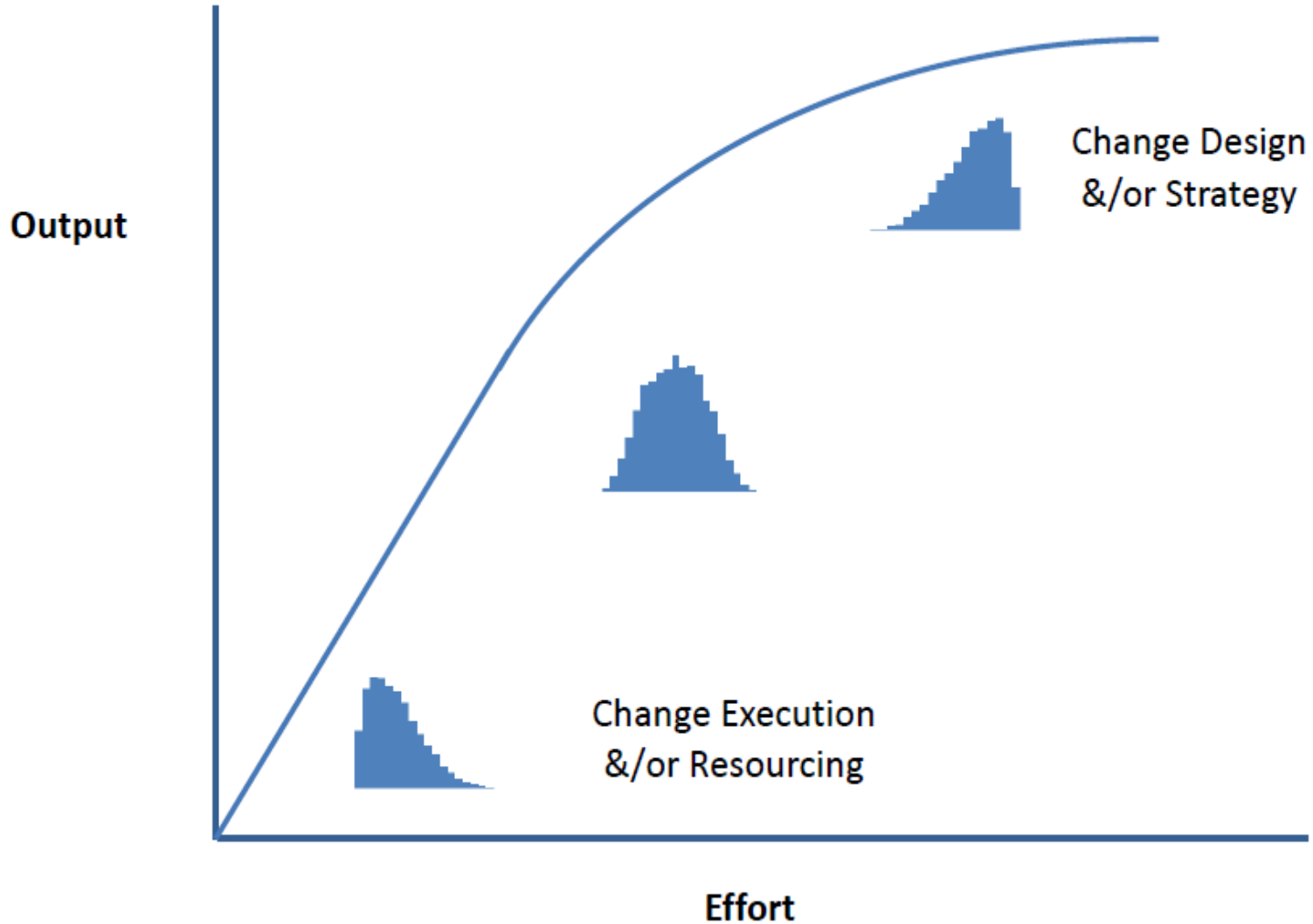
5 What are the key risks faced by each asset?



- A **Capability vs Budget:** Determine gap between current capabilities (C80) and Budget
- B **Likely production (C80):** Level which will be achieved on average with a confidence of 80%, assuming no changes to the process
- C **Potential incremental improvement (P75):** A production level that could be achieved in the near future if the process is stabilised and optimised (aspirational)
- D **Appropriate optimisation strategy for asset:** Distribution shape - Indication of required effort to improve output
- E **Mean (C50)**

# Type of Intervention Required for Improvement

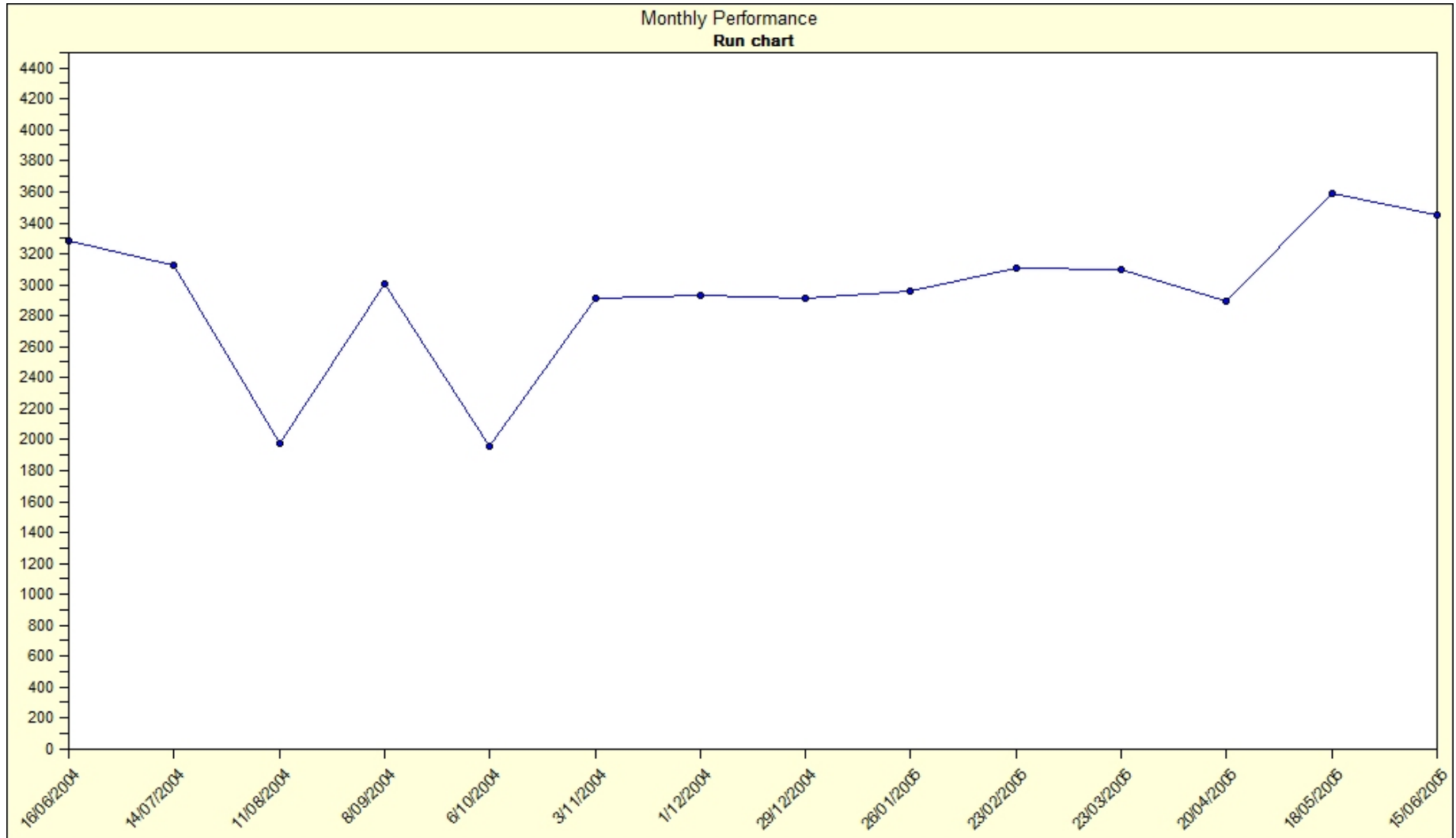
Analysis of the shape of the Capability Histogram may indicate where the process resides on the Output/Effort curve and hence give an indication of the intervention required and where the operation is relative to full potential





# Variation

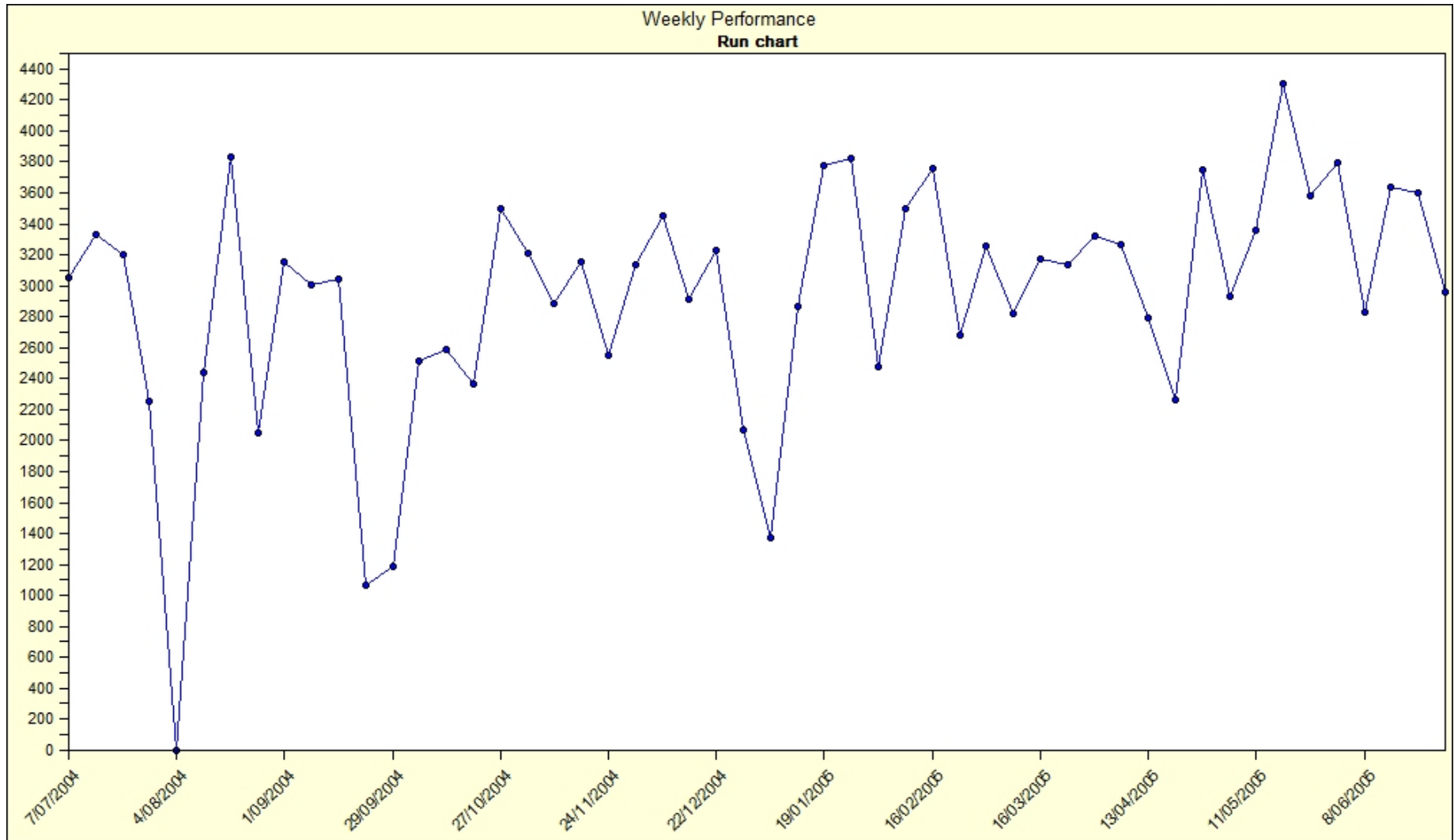
How did you do? What can the process do?





# Variation

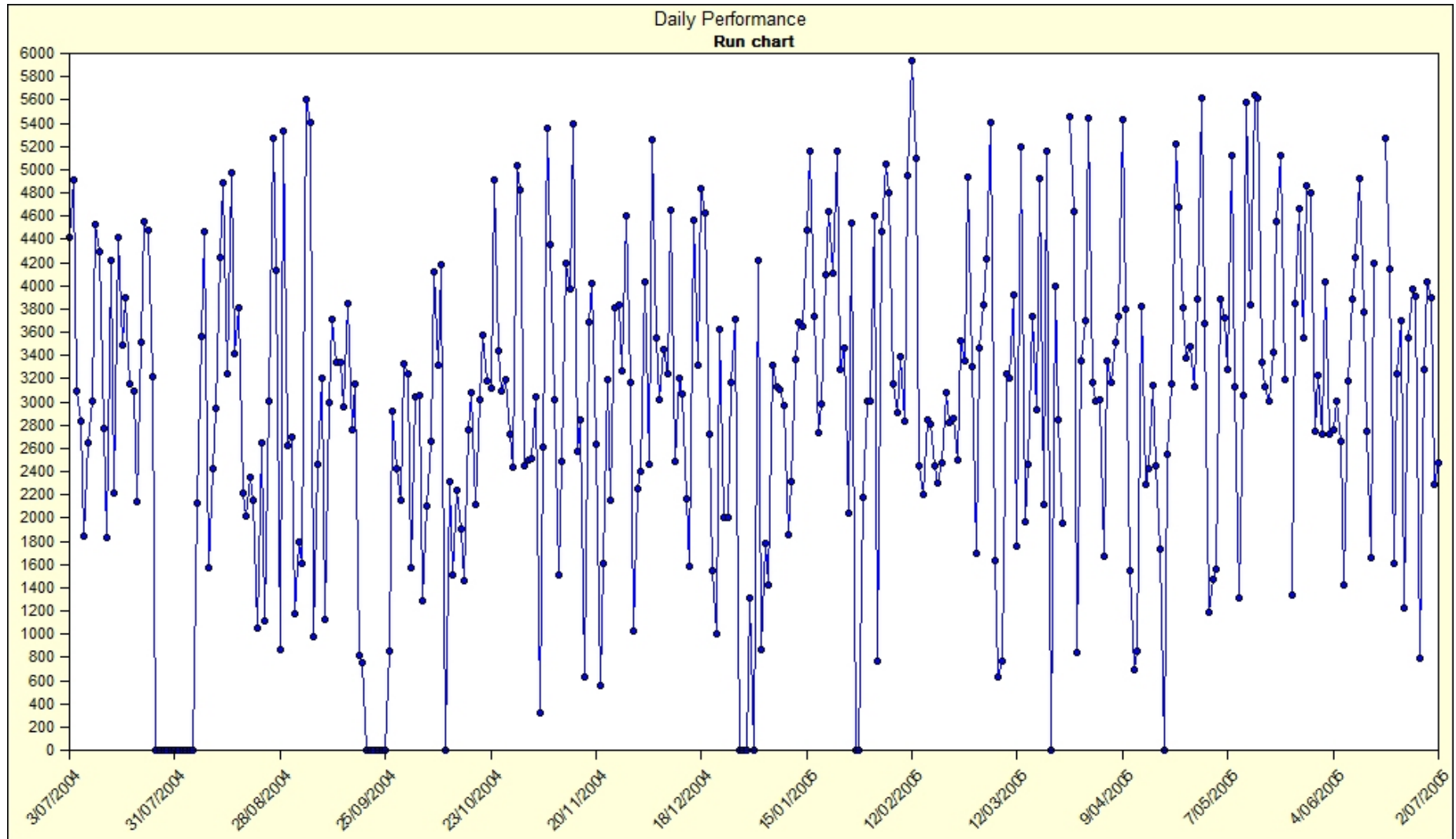
How did you do? What can the process do?





# Variation

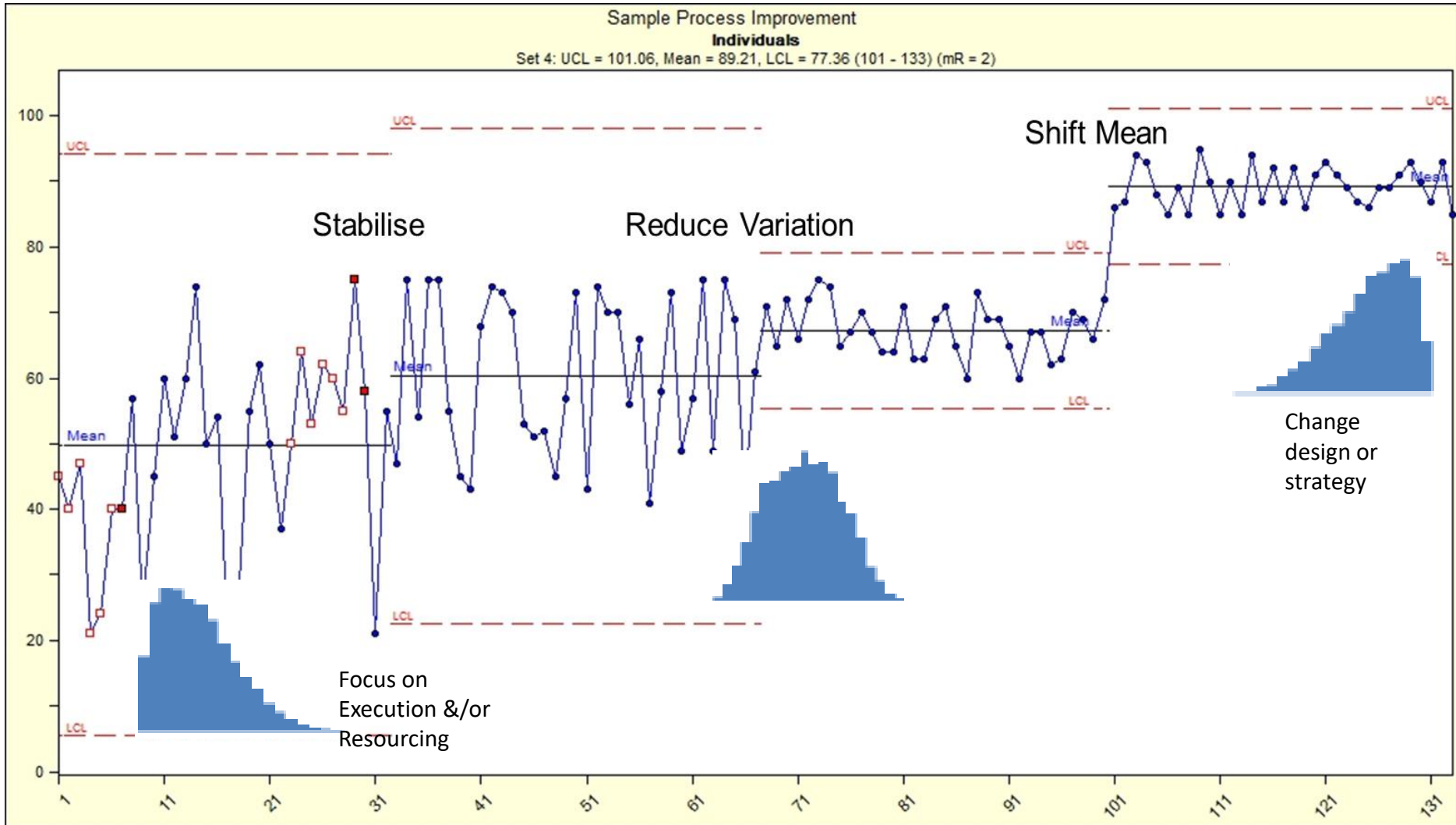
How did you do? What can the process do?



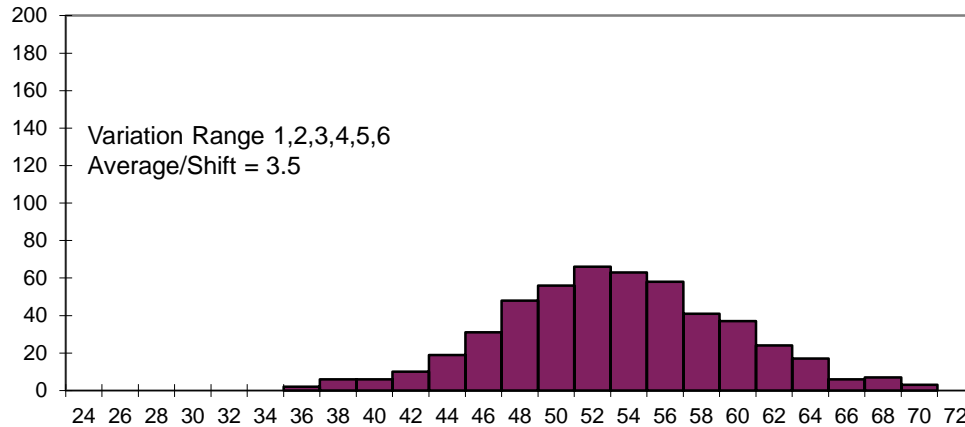


# Asset strategies to optimise value...

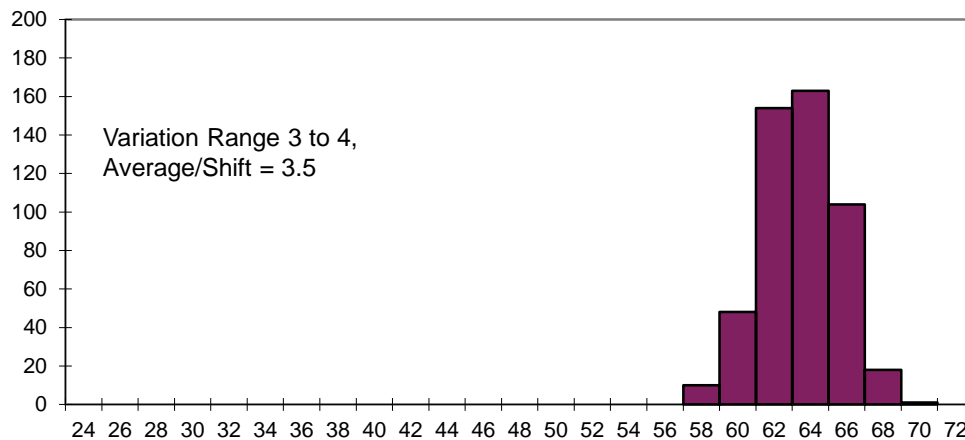
The key focus of value optimisation will be on stabilising the process to get predictable and consistent performance



**Simulation of Production:  
With Dice Output 1,2,3,4,5,6**



**Simulation of Production:  
With Dice Output 3 & 4**



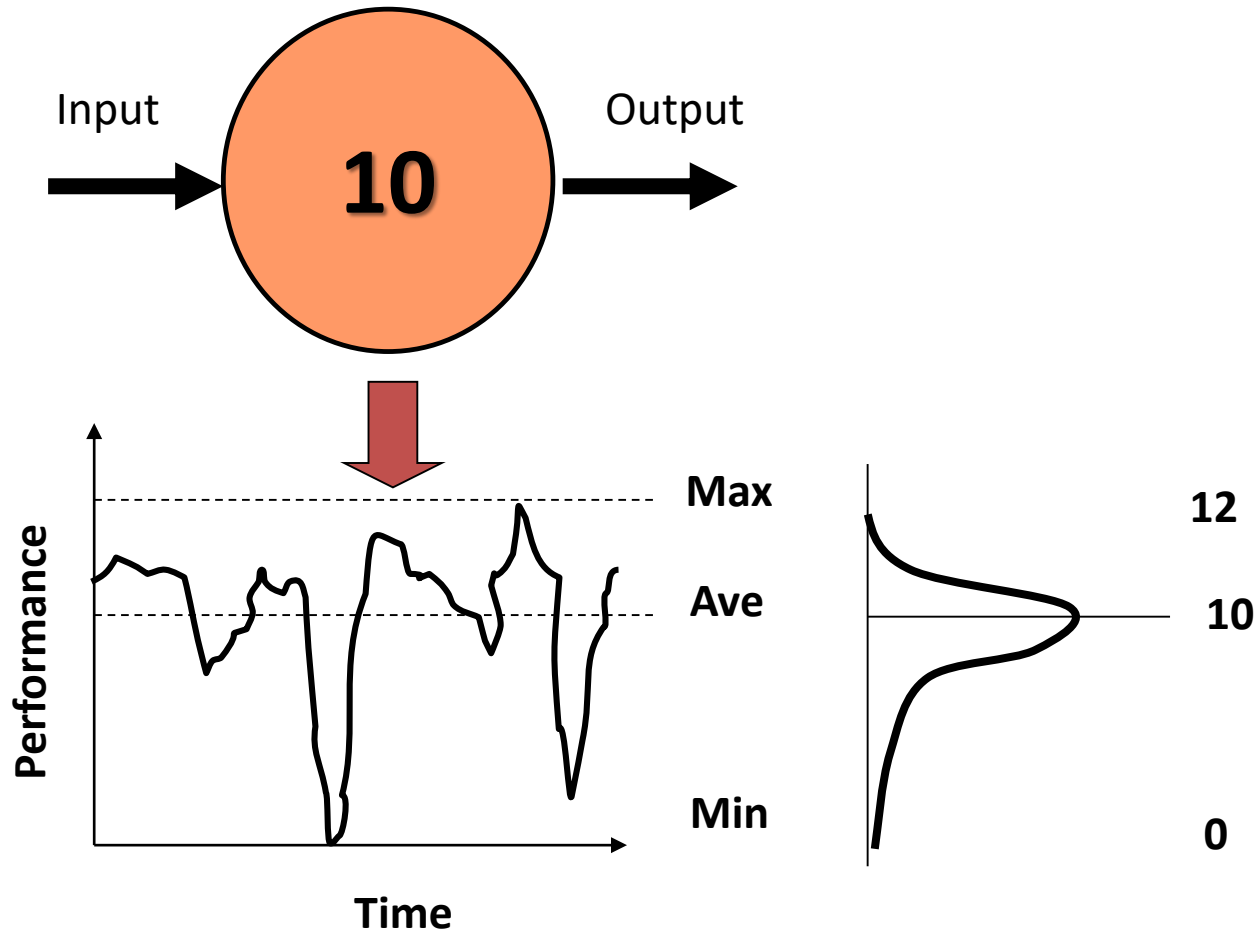
### Key Learning:

- Coupled variation causes constraints
- Process capacity causes constraints
- Seldom does everything 'align' to give full potential
- Reducing the variation in each process step caused whole system to perform significantly better



# Scientific Fact 1

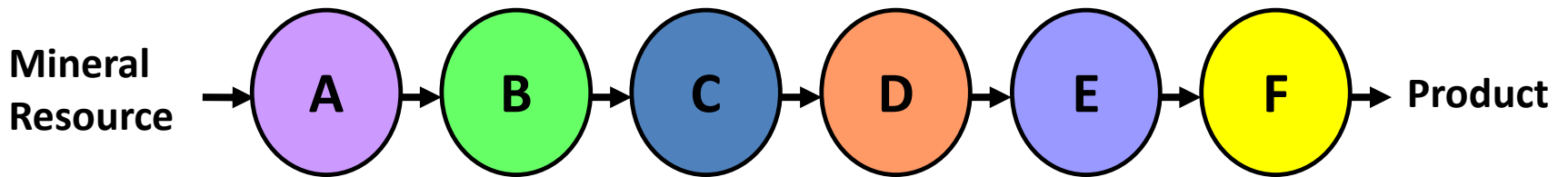
## All Resources Fluctuate Over Time



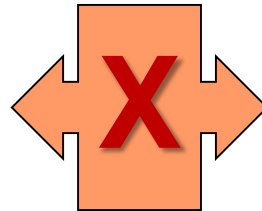


# Scientific Fact 2

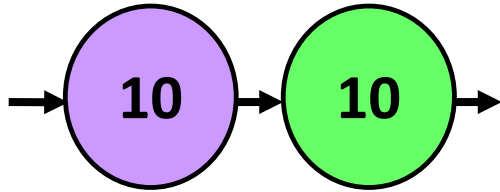
**Interdependence Impacts The Whole Chain**  
**The variations do not average out!**



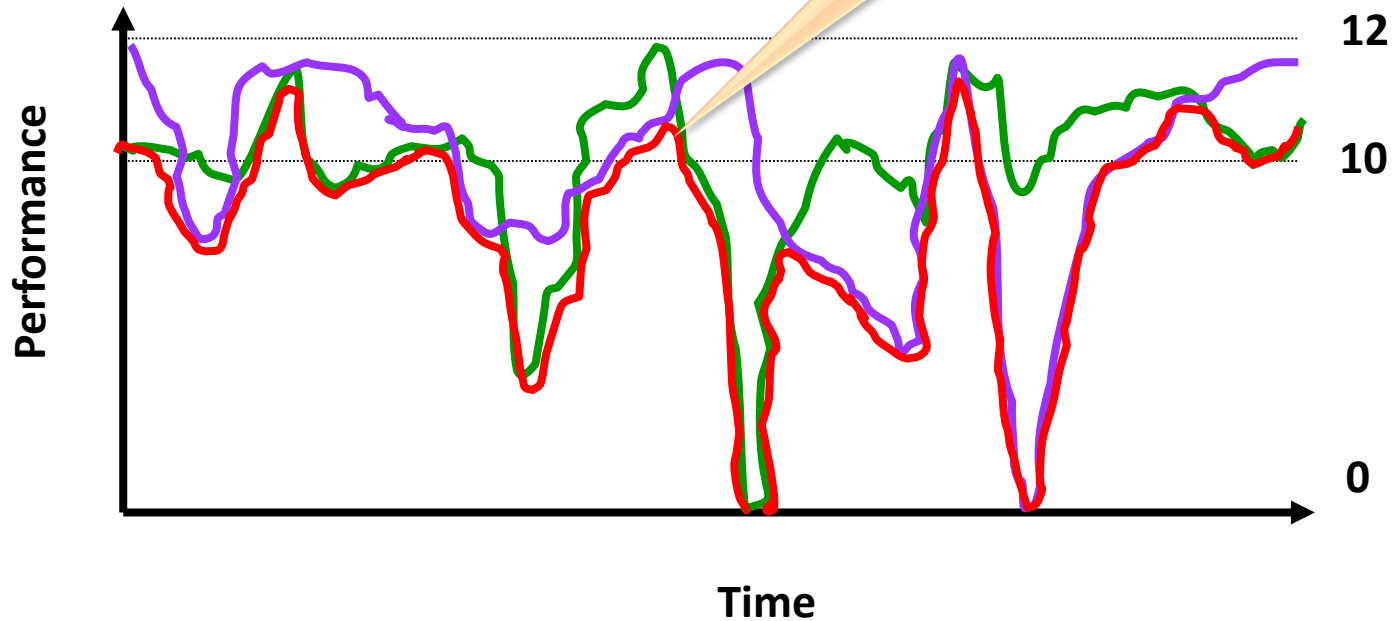
**Blockage**



**Starvation**

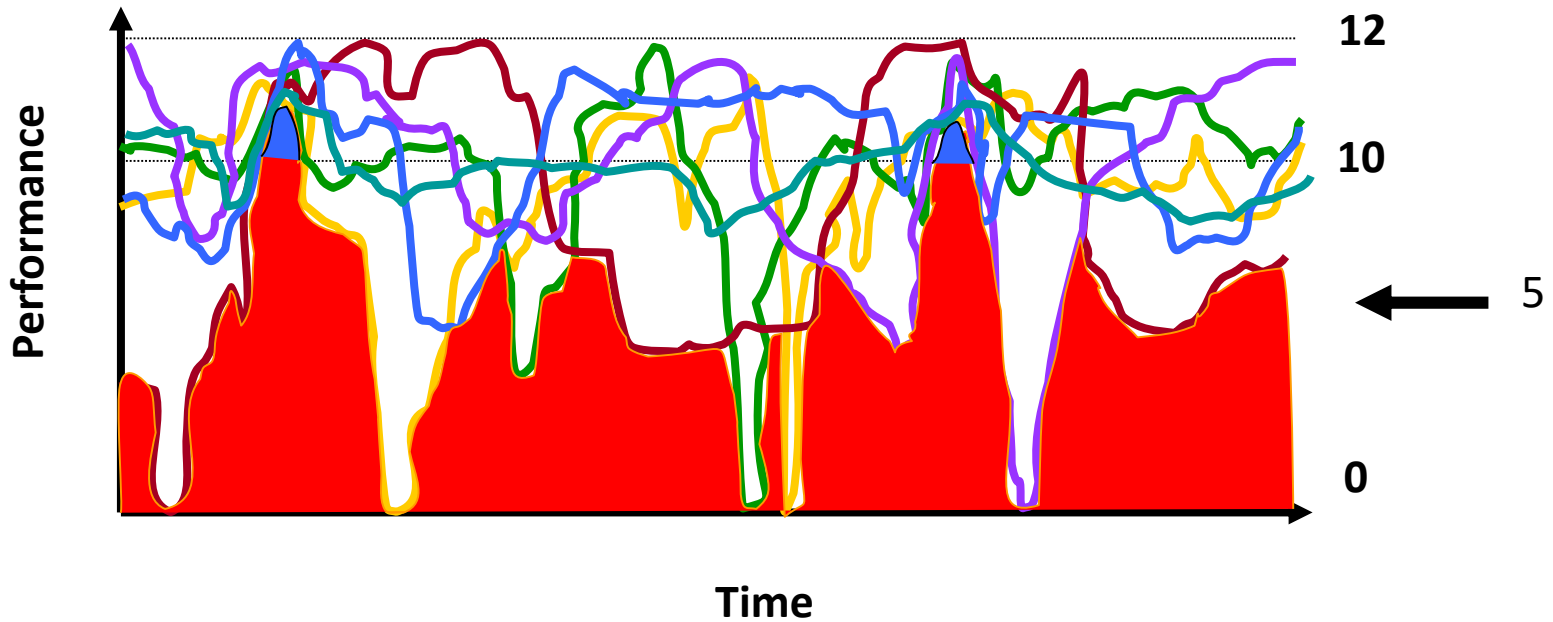
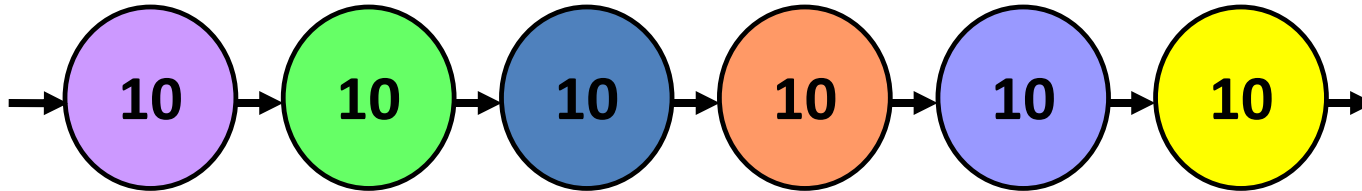


The **poor** performance of one link gets passed onto the **flanking link**, and ultimately to the **rest of the chain**

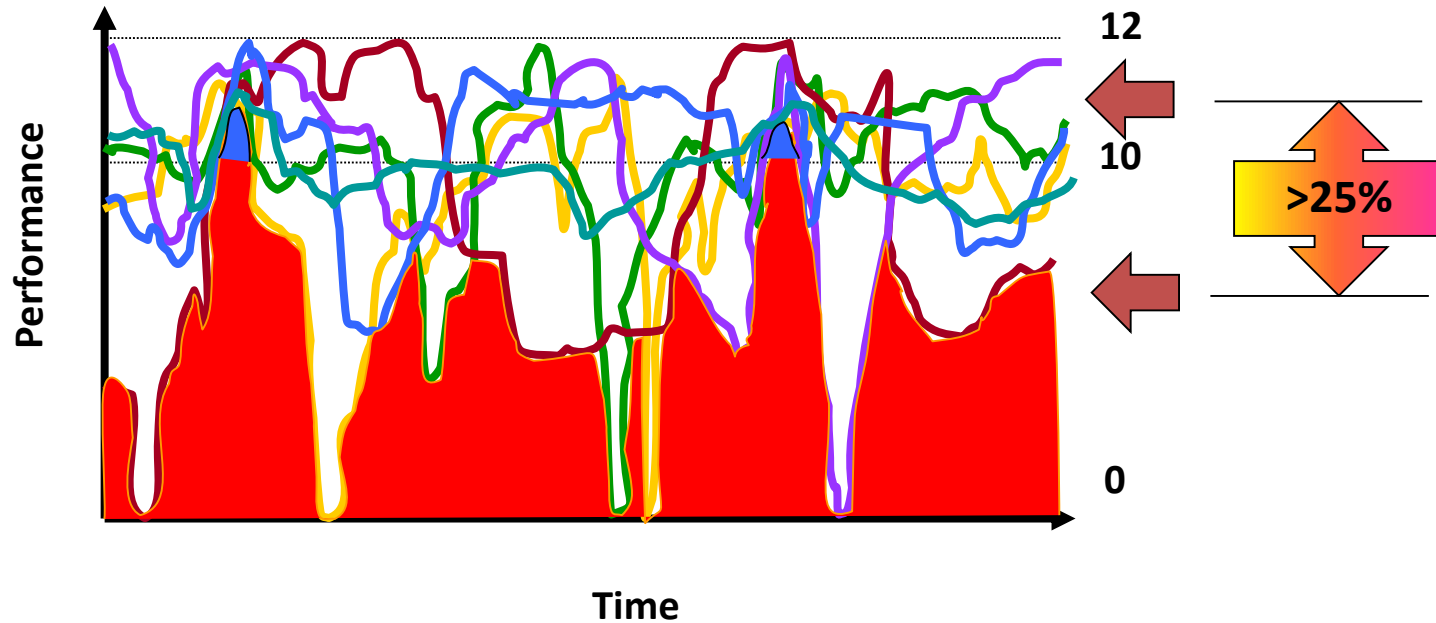
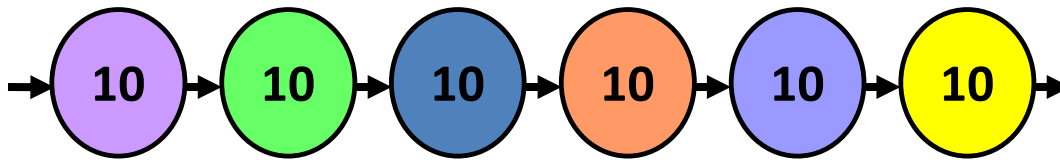




# Combined Effect of Variation and Interdependence



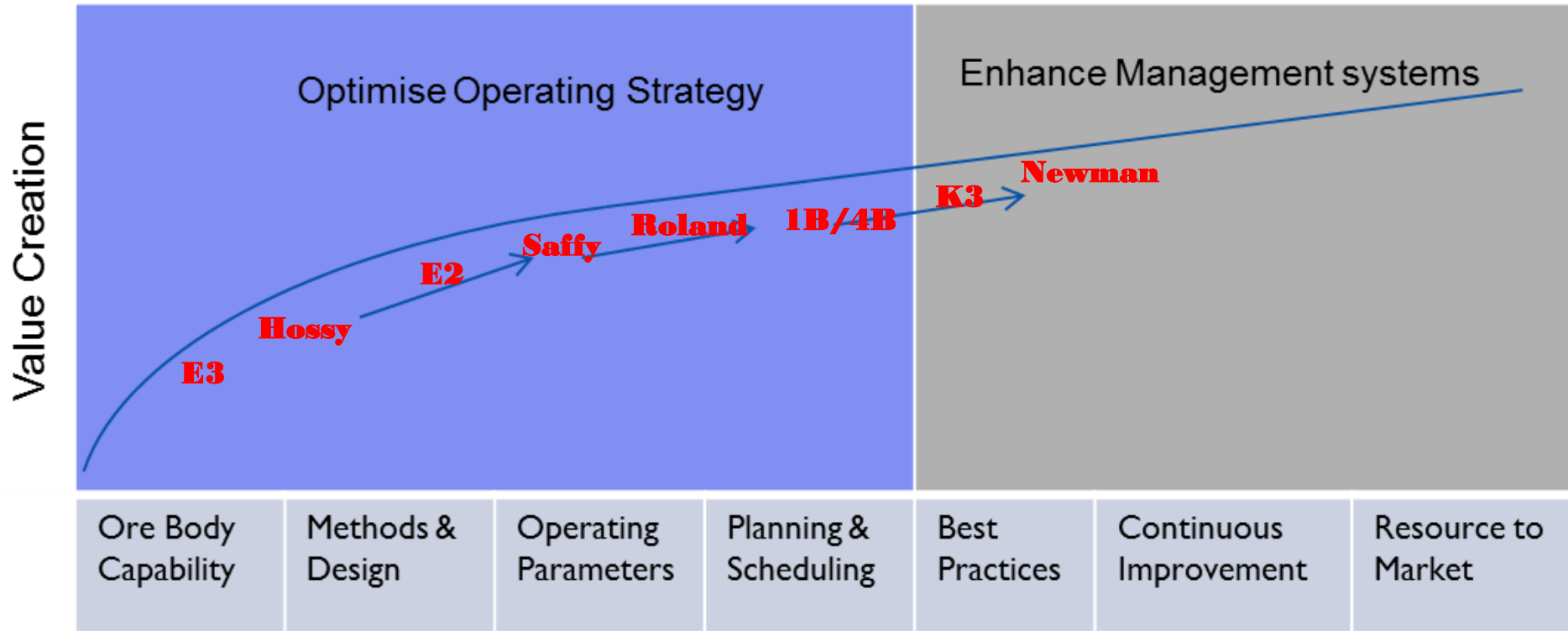
# Combined Effect of Variation and Interdependence





# Value Optimisation Strategies...

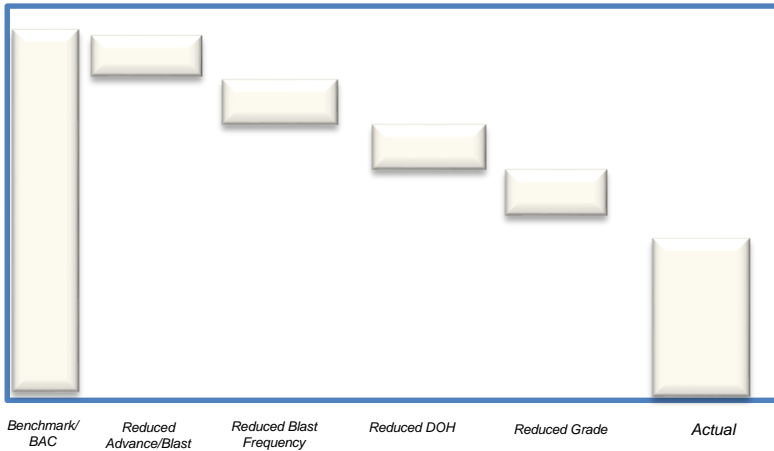
Appropriate and specific value improvement strategies will be determined for each asset depending on its position on the value optimisation curve



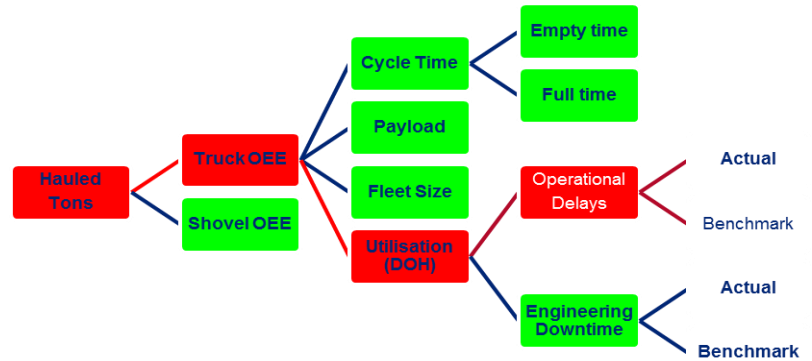


# Tool set for analyses

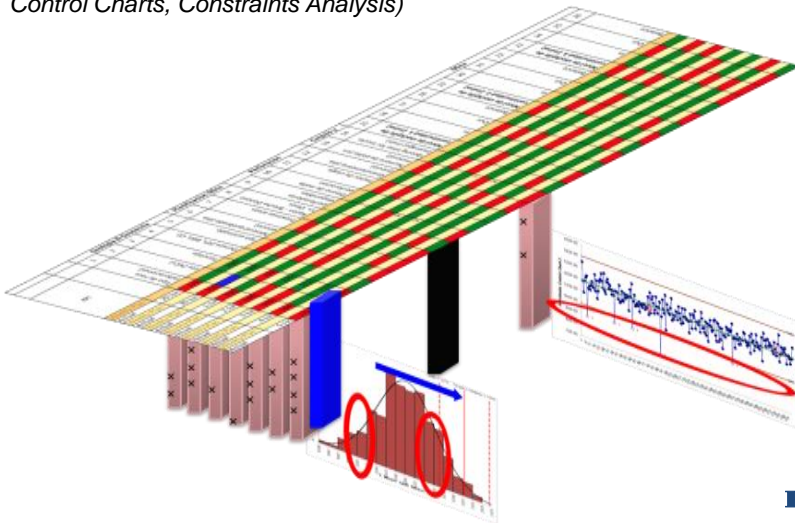
**Throughput:** Do we have a Rate or Operating Time problem?



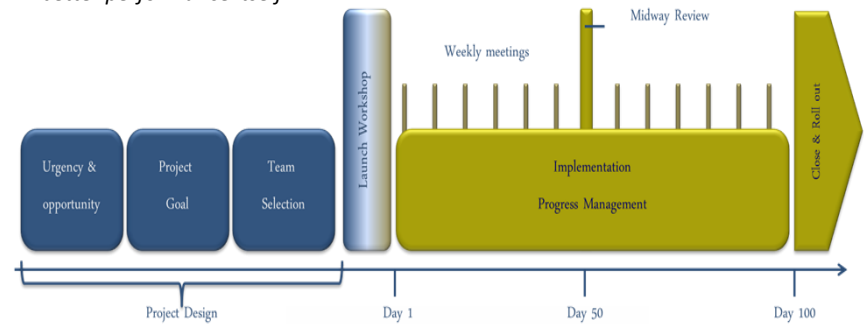
**Value Driver Analysis:** Which are the biggest value levers?  
Operating Profit, Volume, Unit Cost, Sensitivity & Attribution Analysis



**Value Stream Mapping & Statistical Analysis** (Process Capability, Paretos, Control Charts, Constraints Analysis)

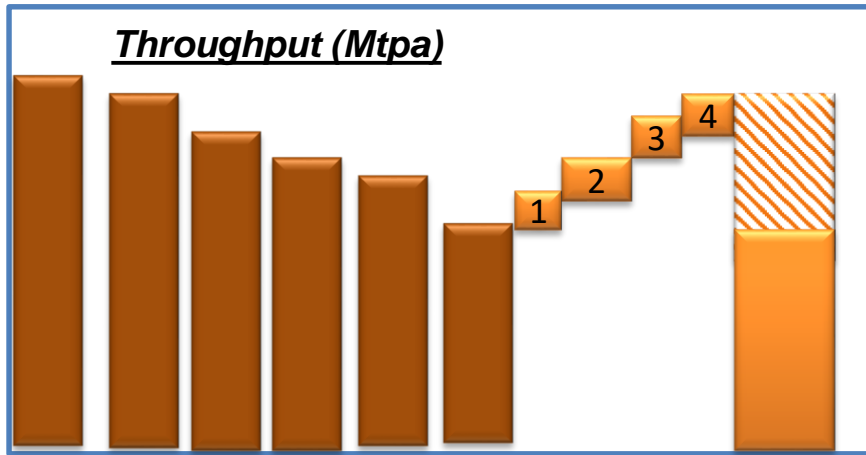


**Performance Improvement:** "The most powerful driver of better performance is better performance itself"

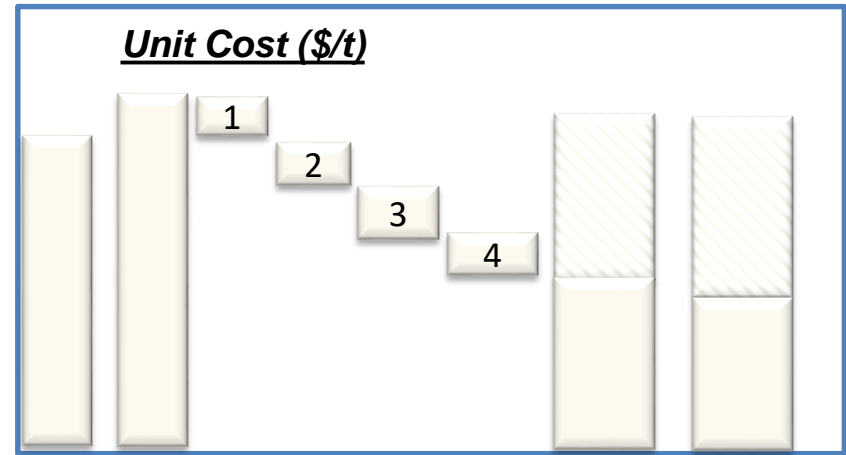




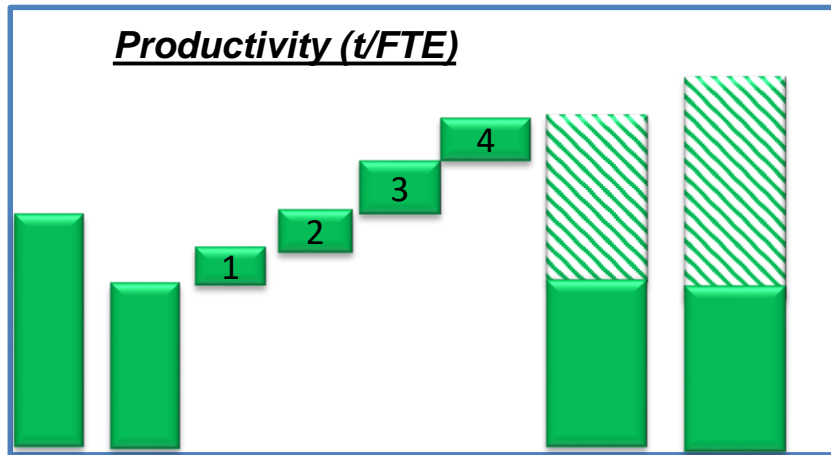
# Output: Determination of full potential of operations, summarized by 4 waterfalls...



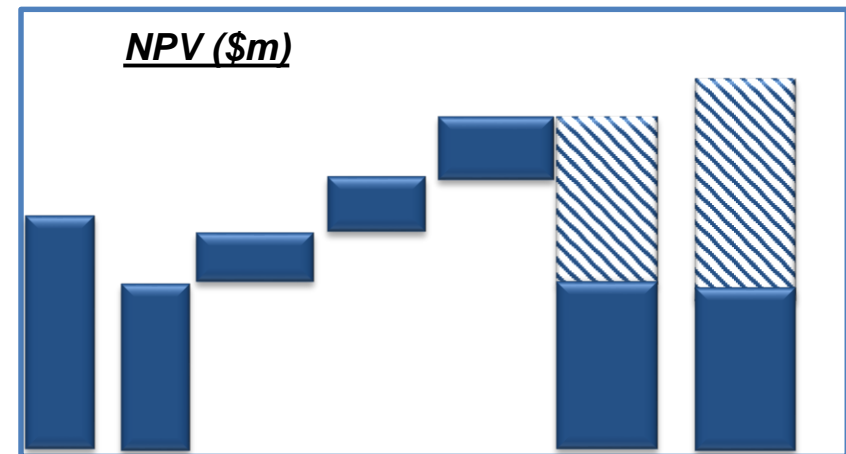
BAC/  
Benchmark    Drill &  
Blast    Load    Haul    Crush    Mill    Improvements    Potential  
Tons



Plan/  
Budget    Actual    Improvements    BDP    BAC/  
Benchmark



Plan/  
Budget    Actual    Improvements    BDP    BAC/  
Benchmark



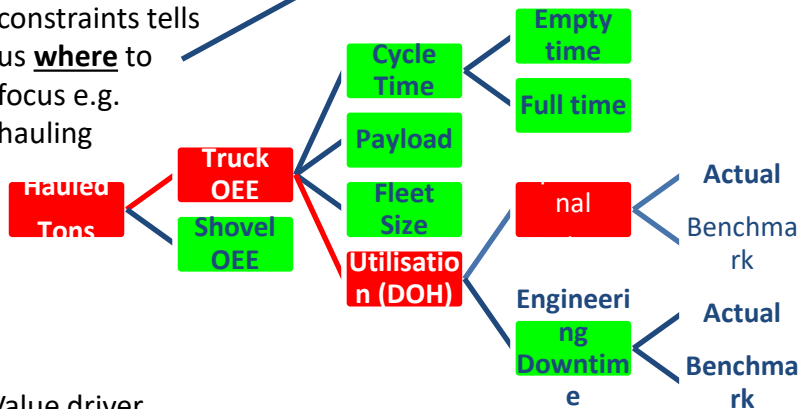
Plan/  
Budget    Actual    Throughput    Unit Cost    Productivity    BDP    Full Potential



# Summary of AO Strategy in Action



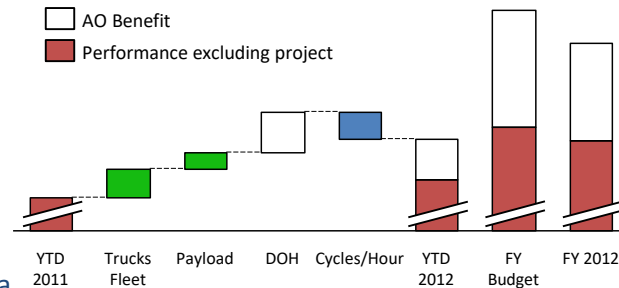
Theory of constraints tells us **where** to focus e.g. hauling



Value driver model tells us **what** to focus on within the constraint

Gap analysis vs. benchmark tells us **how much** we can improve

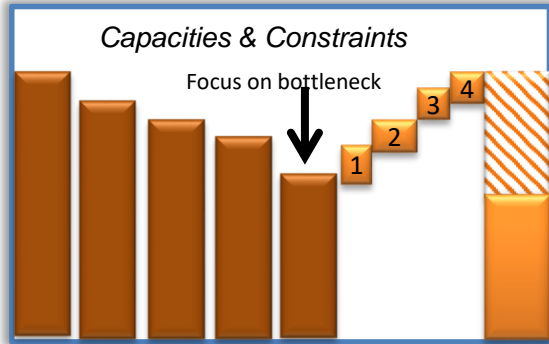
Target setting keeps us **focused on delivery**



Variance and Attribution analysis shows us **the impact on business drivers**

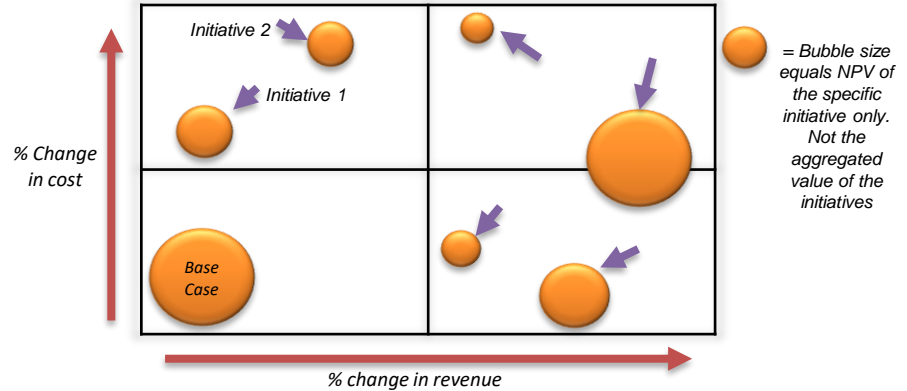
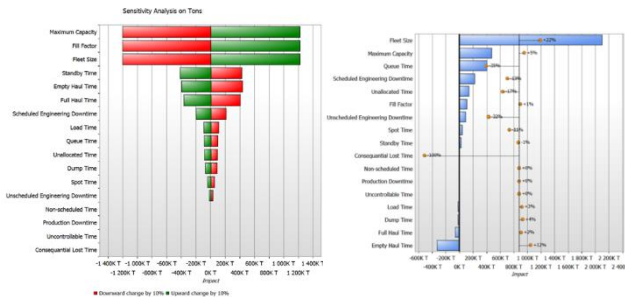


# Examples of Some of the Analysis that will be Produced

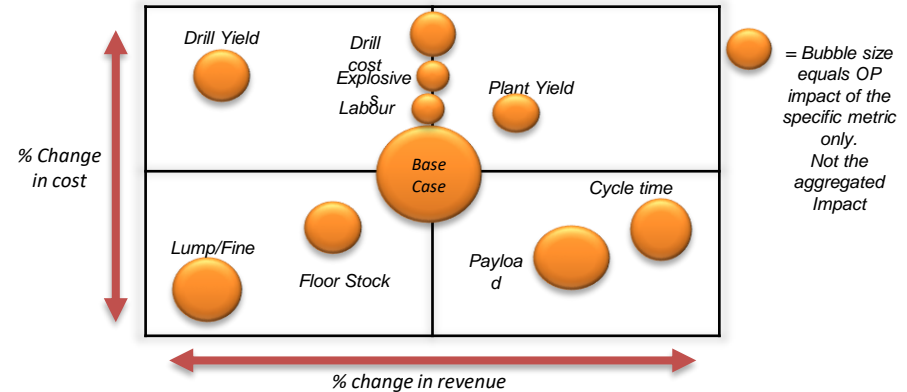


Best Attn Capacity    Load/Haul    JIG/DMS    Transfer    Drill/Blast    Potential Tons

*Attribution and Sensitivity Analyses to determine focus areas and impact*



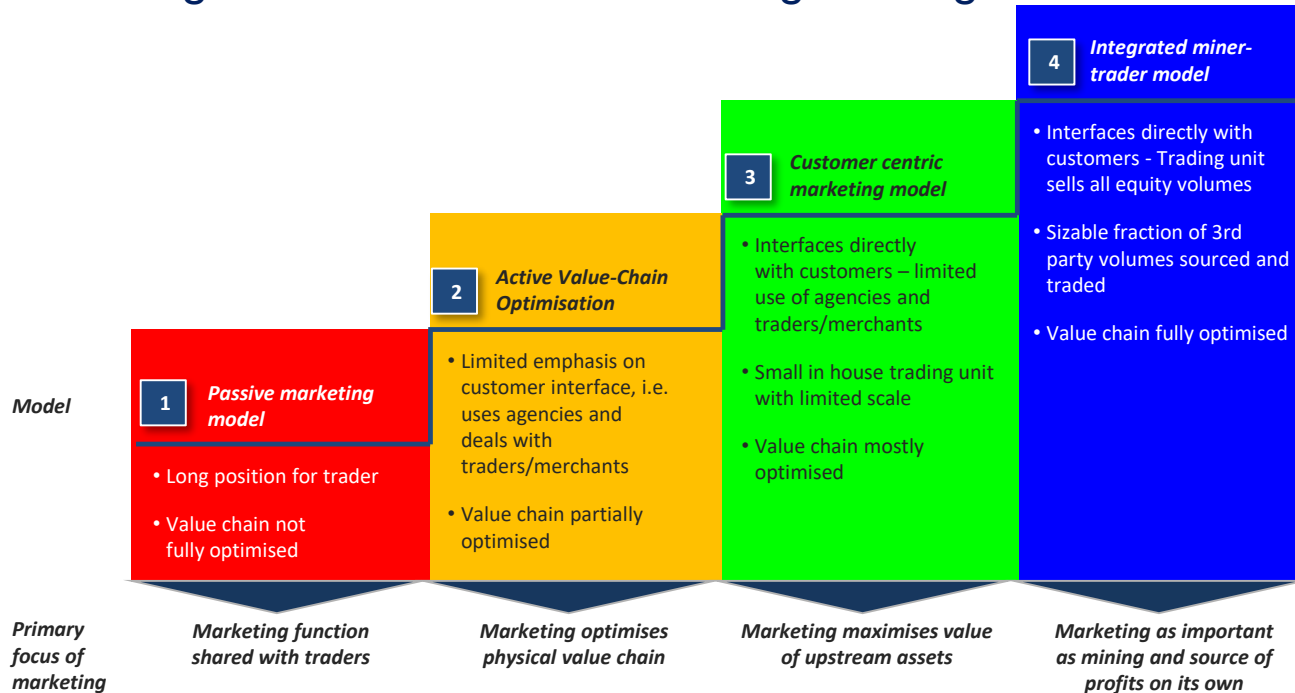
*Impact of interdependent variables (Example: Change drilling burden)*





# Journey Towards Commercial Excellence

## Migrate from Passive Marketing to Integrated Miner

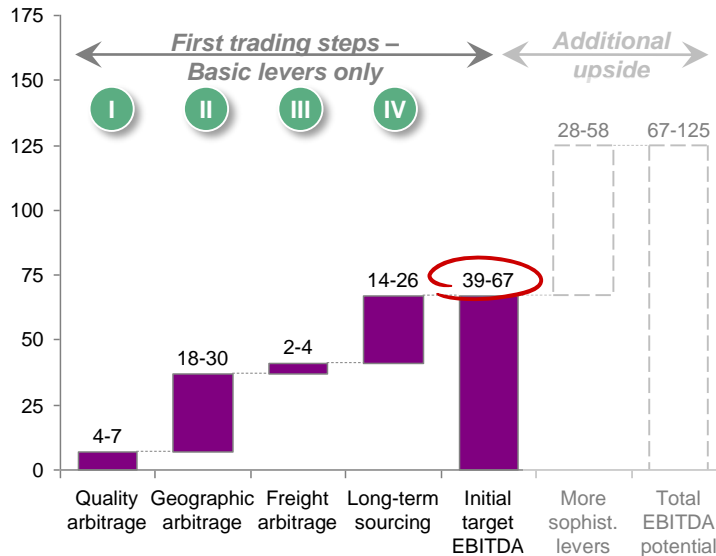


# Value potential of Asset Backed Optimisation

ABO Concept

*Illustrative*

Annual trading EBITDA (\$M)



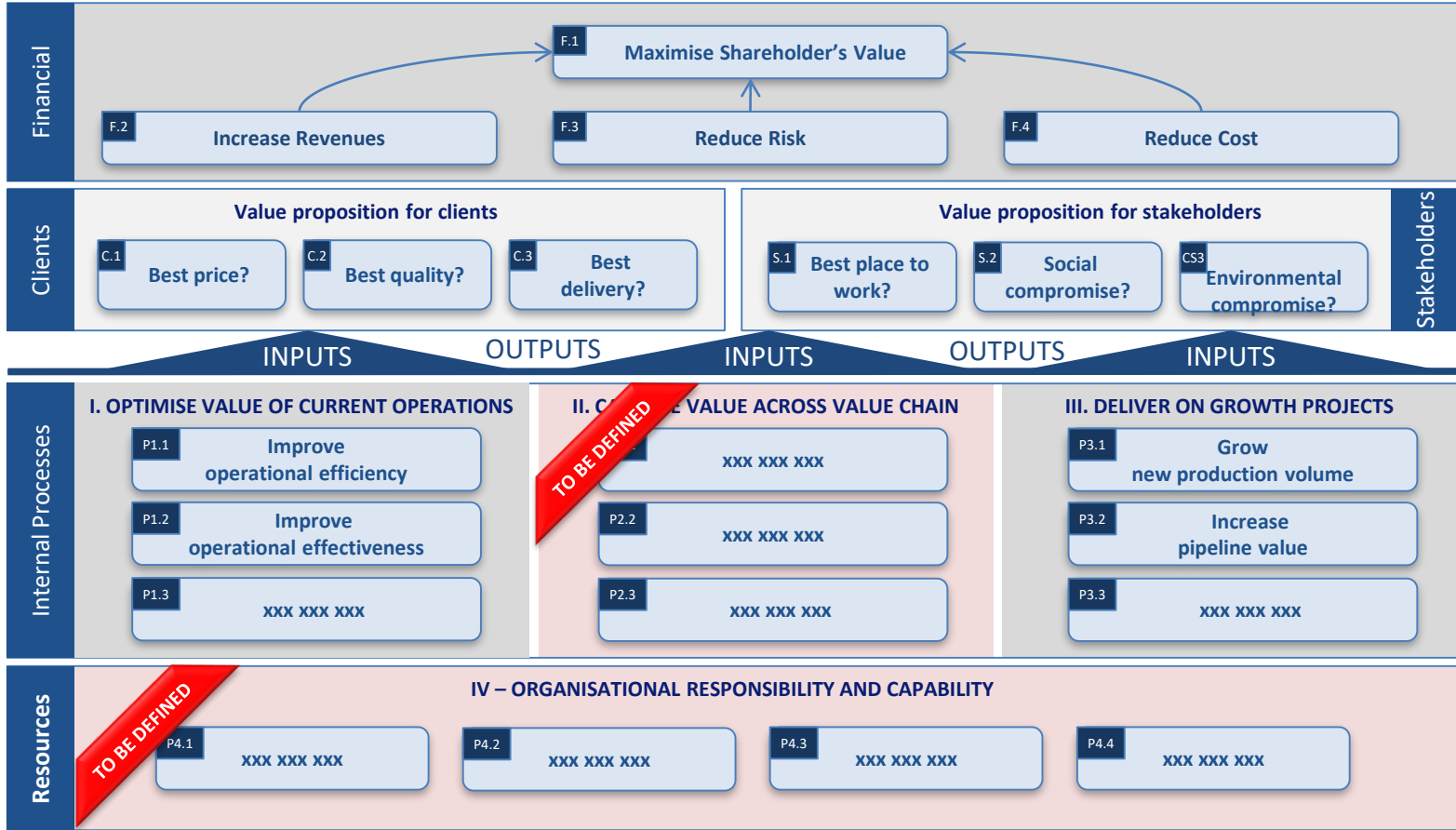
- I Quality arbitrage** – Blend different coal qualities to match customer needs and achieve higher net price realisation
- II Geographic arbitrage** – Capture regional price differentials by shifting coal from low- to high- price markets
- III Freight arbitrage** – Capture differential between index-implicit and real freight rates, eg. by switching from FOB to CIF
- IV Long-term sourcing** – Enter long-term off-take agreement with smaller producer at favourable price and market its volumes on own account

**Basic trading levers with potential to lift HCCL's total value**



# STRATEGY TRACKING USING STRATEGY MAPS

ILLUSTRATIVE



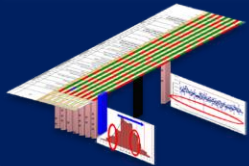
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# Turnaround Strategy Implementation

- ❑ Strategy deliverables
  - White paper
  - Strategy document
  - Long-term financial plan
- ❑ Refreshing the Strategy
  - External Analysis
    - World & Zimbabwe economic analysis
    - Medium and Long-term coal supply and demand
    - Updated short-medium and long term price line
    - Political, Legal & Regulatory Environment
    - Competitive environment, Suppliers, Buyers
  - Internal Analysis
    - Operational Issues, Challenges & opportunities
    - Commercial & Marketing Issues and Opportunities
    - Updated project info
    - Risk management
    - Cultural assessment
  - Emerging Strategy
    - Update HCCL strategy incorporating changes in internal environment
    - Derive plan for implementing strategy (KPI's; Time line; Performance contracts)
- ❑ Key Milestones
  - White paper
  - Department & HOD Workshops
  - Strategy document and Business plan
  - Long-term financial plan
  - Board Strategy and Risk Workshop

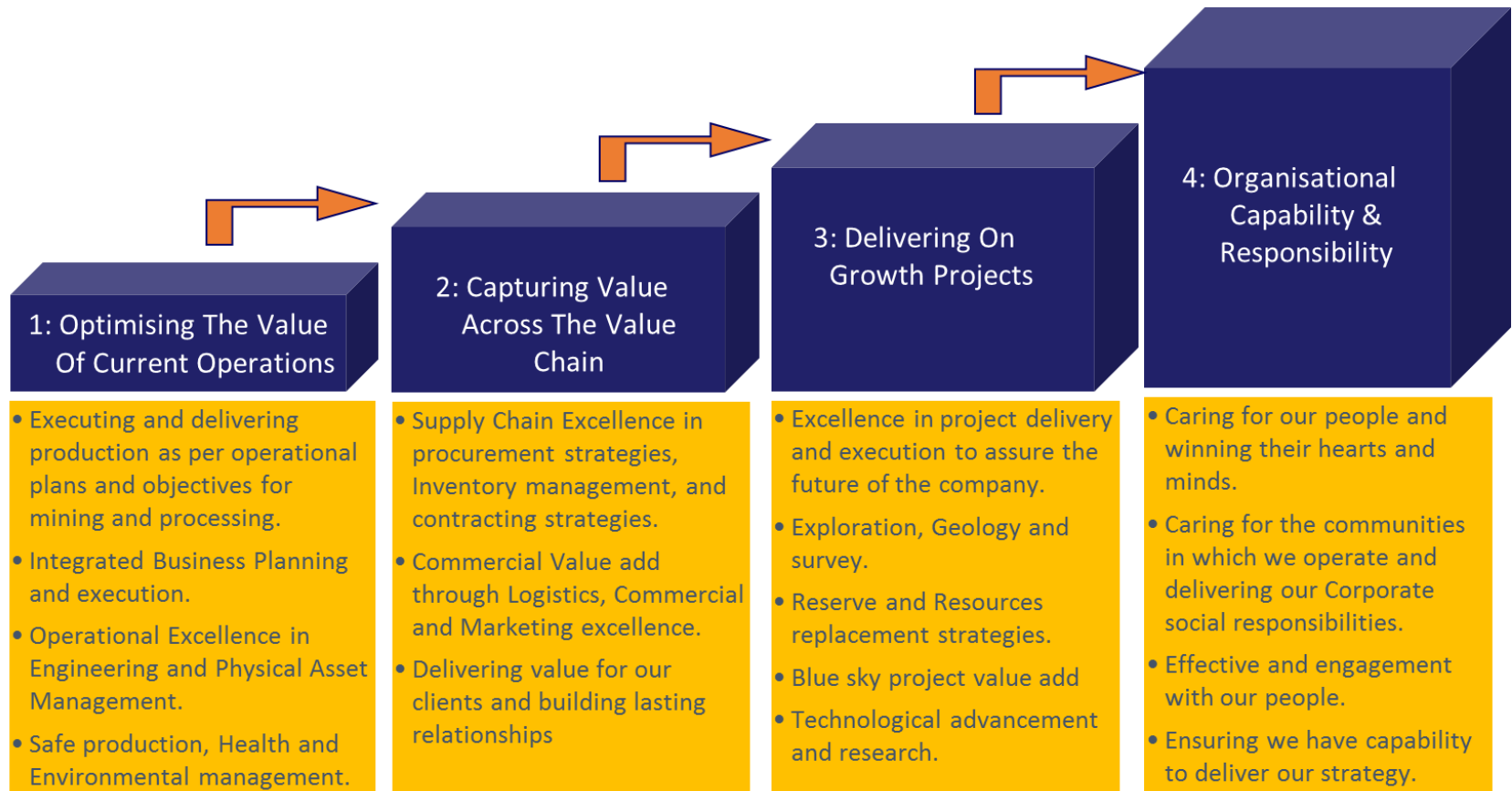


# Key Success Factors

- Senior Management Support
- Dedicated Senior BPI Manager Reporting Directly to CEO/MD
- Well resourced, Focussed Teams
- BI & AM Skills Development and Capability Building
- Expert Input, Support and Facilitation
- Medium to long term commitment to transformation

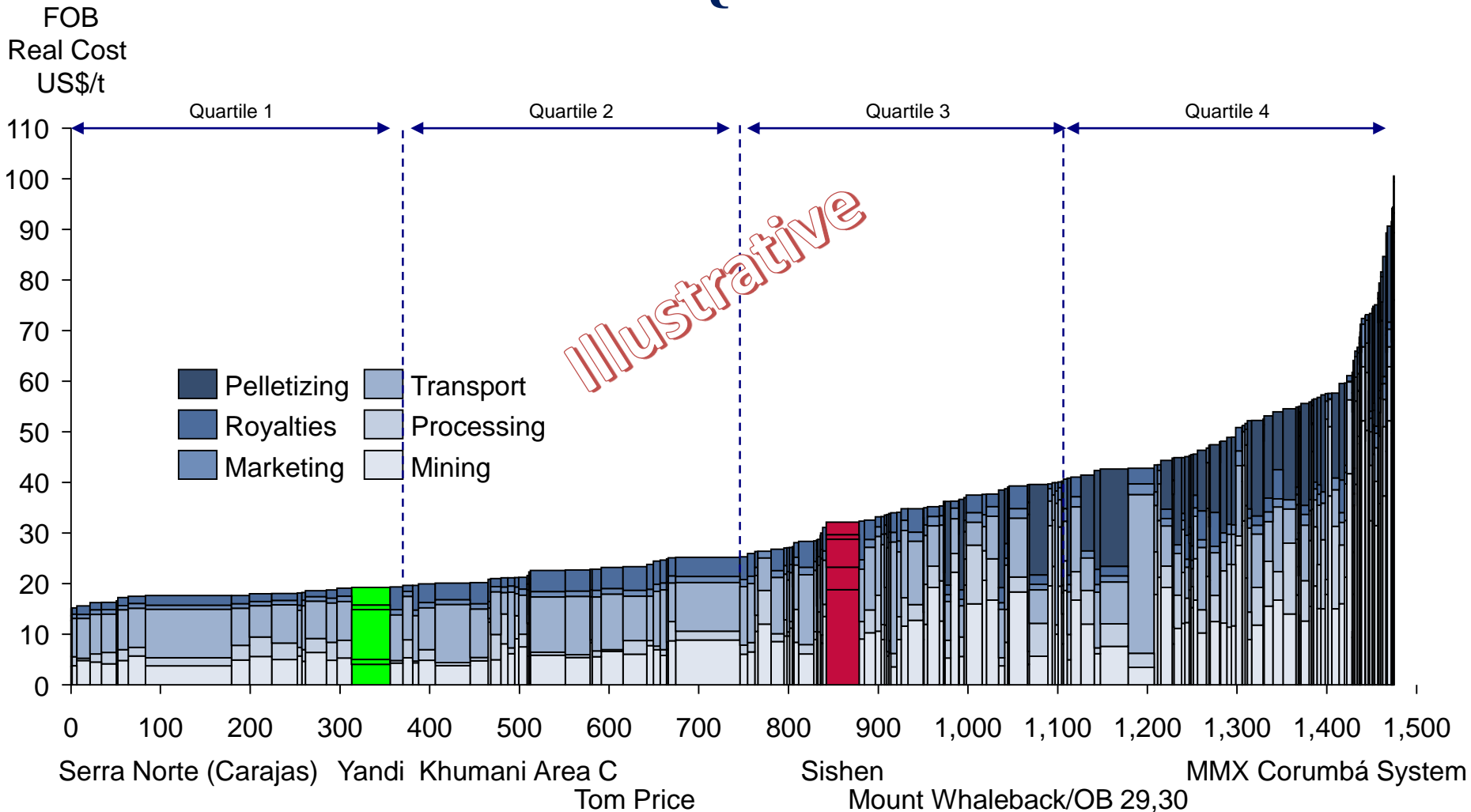


# Strategic Pillars





# Need to move from 3<sup>rd</sup> Quartile of cost curve to 1<sup>st</sup> Quartile



Source: - AME 2015 FOB cost curve



# **Financial & Management Strategies**

- ❑ Balance Sheet Restructuring
  - Liquidity & Operating Cashflow
  
- ❑ Organisational Structuring
  - Organising for success



# **Operational Performance Improvement**

- Theory Of Constraints Production Flow
- Rapid Results Implementation
- Physical Asset Management Improvement



# Total Tons Produced

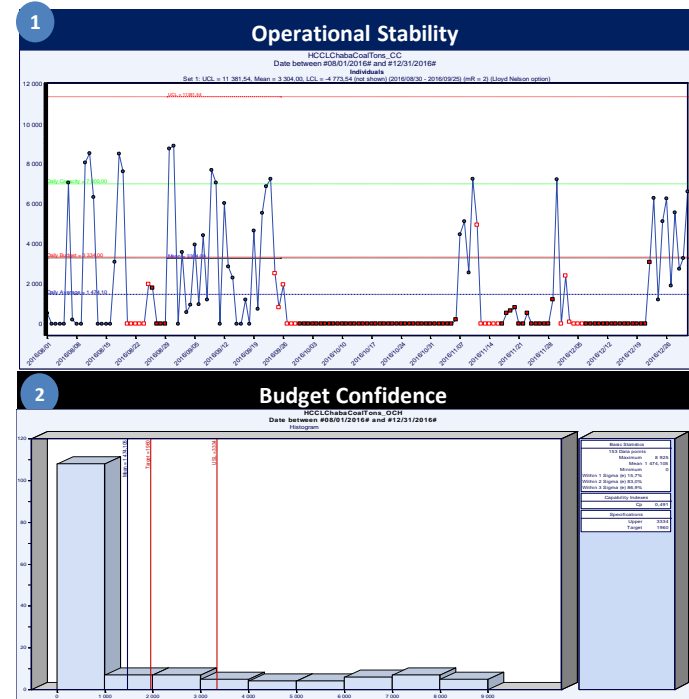
Detailed capability and operational stability analysis indicated the confidence of delivering 2017-2021 Budget is 0% without substantial changes to current processes and practices. The analysis indicated that there is a huge potential for upside performance improvement by stabilising the process, reducing variation, eliminating interdependencies and creating predictable and consistent performance.

1

- High levels of variation on a day to day basis at overall production implies that substantial potential improvement can be gained by stabilising the process.
- Key area of opportunity going forward seen in reducing number of days with zero production and narrowing the production range.
- There is also a potential opportunity in reducing extreme swings in production which currently ranges from zero to over 8,000 tons per day

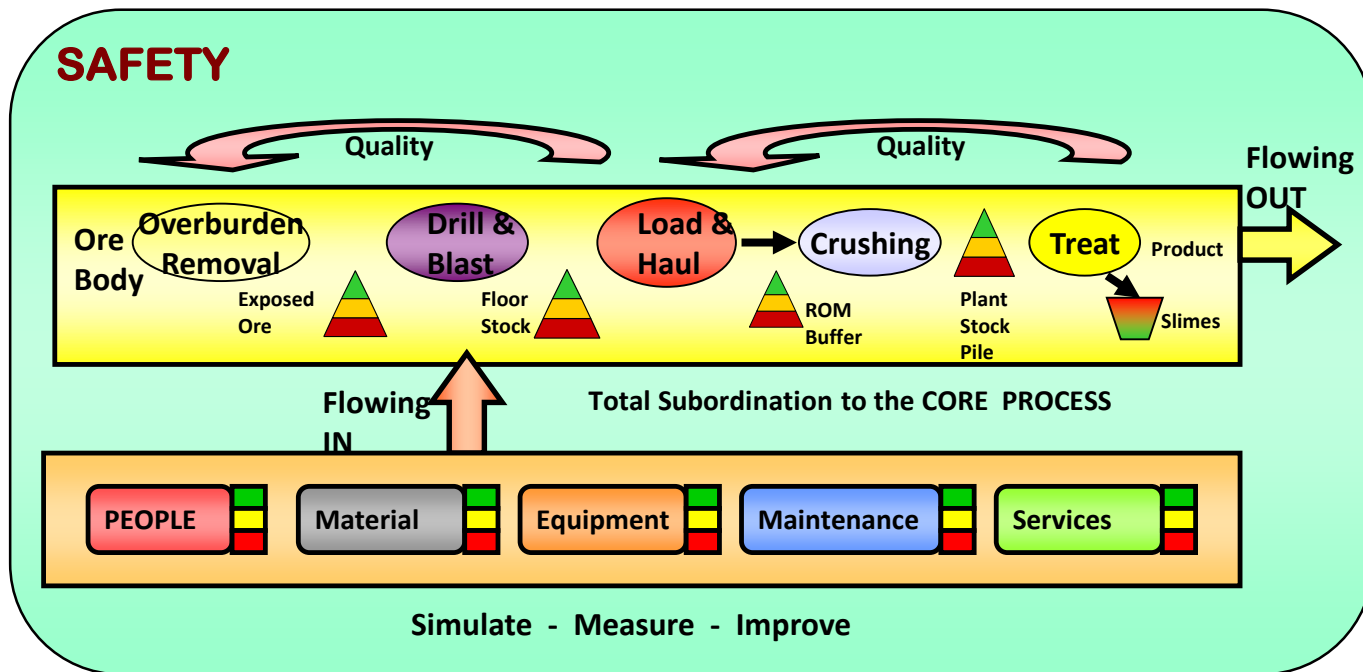
2

- Production capability histogram skewed extremely to the left indicating potential for improvement by shifting to the right.
- Realistic budget for HCCL that can be achieved with 80% confidence without change in process and practices is 16,214 tons/month and 37,230 tons/month with 50% confidence
- Potential aspiration of 58,948 tons/month could be reached in 6-12 months with process improvements



Daily Tons	2017 Budget	Aug 2015 to Dec 2016 Mean	C80	Confidence	P75
Monthly	100 000	37 230	16 214	0%	58 948
Quarterly	299 178	111 384	46 142	0%	176 358
Annual	1 200 000	446 760	194 562	0%	707 370

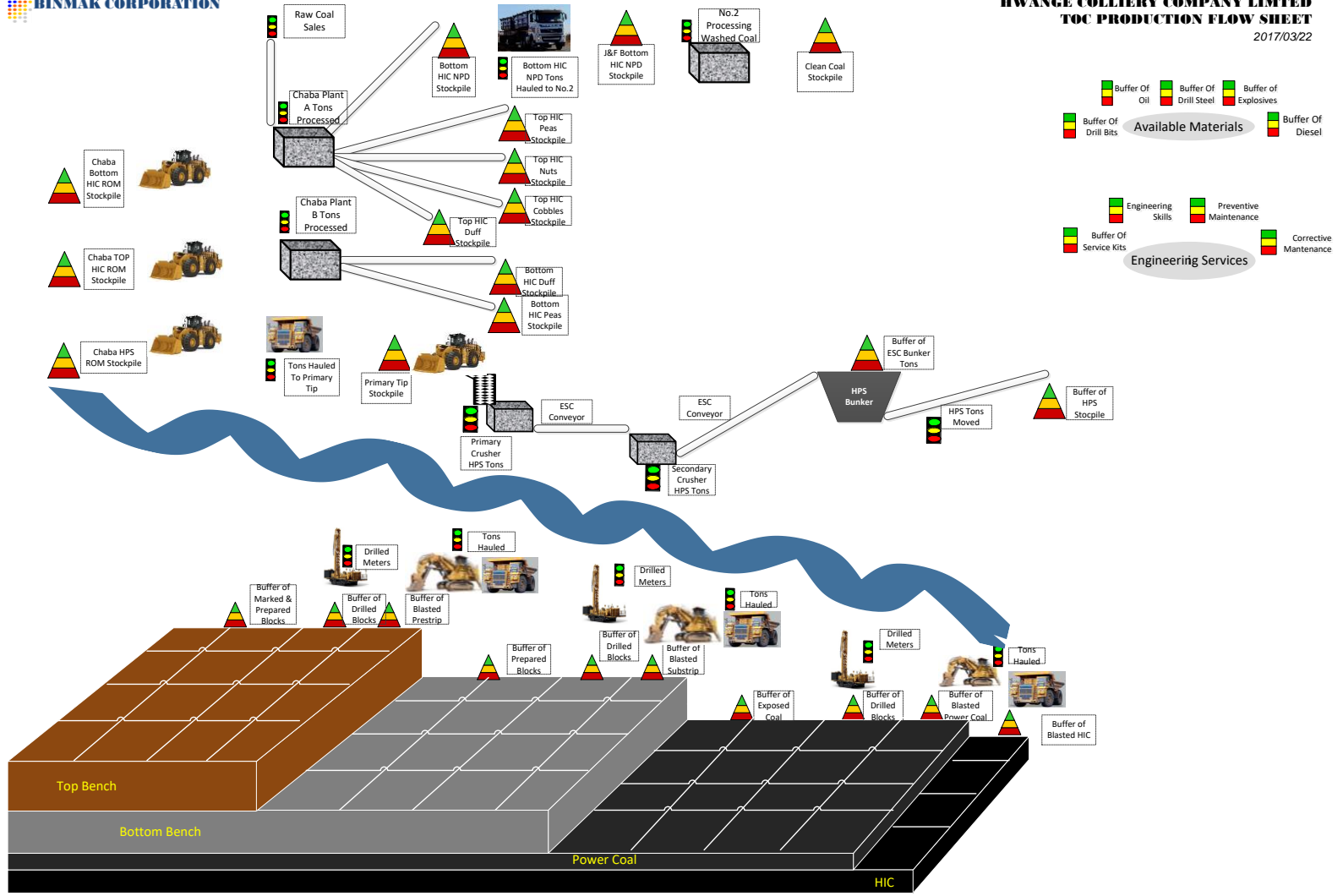
# Theory Of Constraints Operational Flow Model for Open Cast Mining Operations





**BINMAK CORPORATION**

**HWANGE COLLIERY COMPANY LIMITED**  
**TOC PRODUCTION FLOW SHEET**  
2017/03/22



**Available Materials**

- Buffer Of Oil
- Buffer Of Drill Steel
- Buffer Of Explosives
- Buffer Of Drill Bits
- Buffer Of Diesel

**Engineering Services**

- Engineering Skills
- Preventive Maintenance
- Buffer Of Service Kits
- Corrective Maintenance



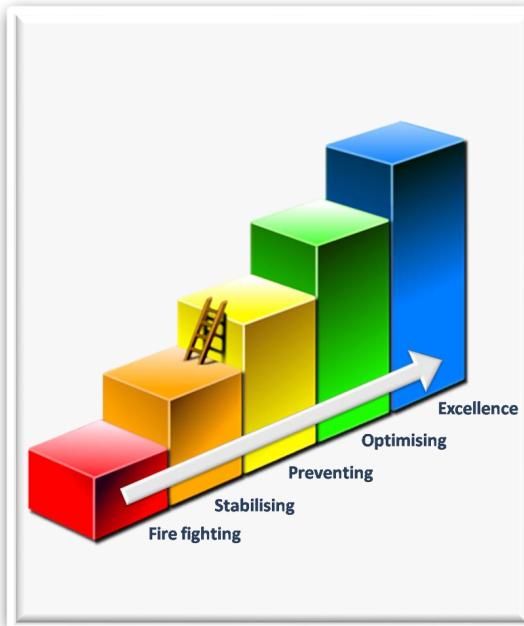


# TOC Production Flow Implementation

## Daily Ops War Room



# Asset Management Improvement



A Business Process with the objective of **assessing the client's current asset management maturity** against best practices, as well as its asset performance against benchmarks. Recommendations are made about improvement actions to address the main gaps.



# AMI Approach

KPA: Asset Care Plans  
Element 1

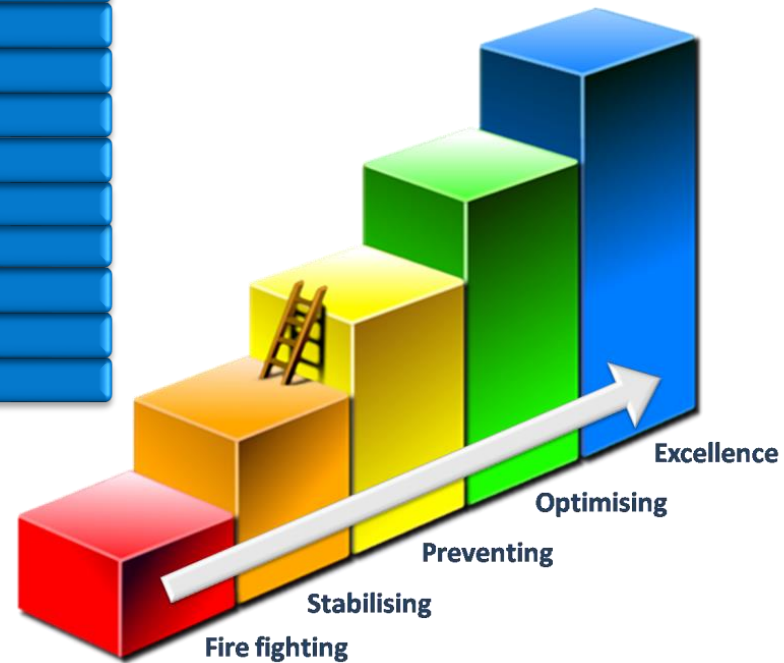
## Practice-Performance Model





# Asset Management Self Assessment

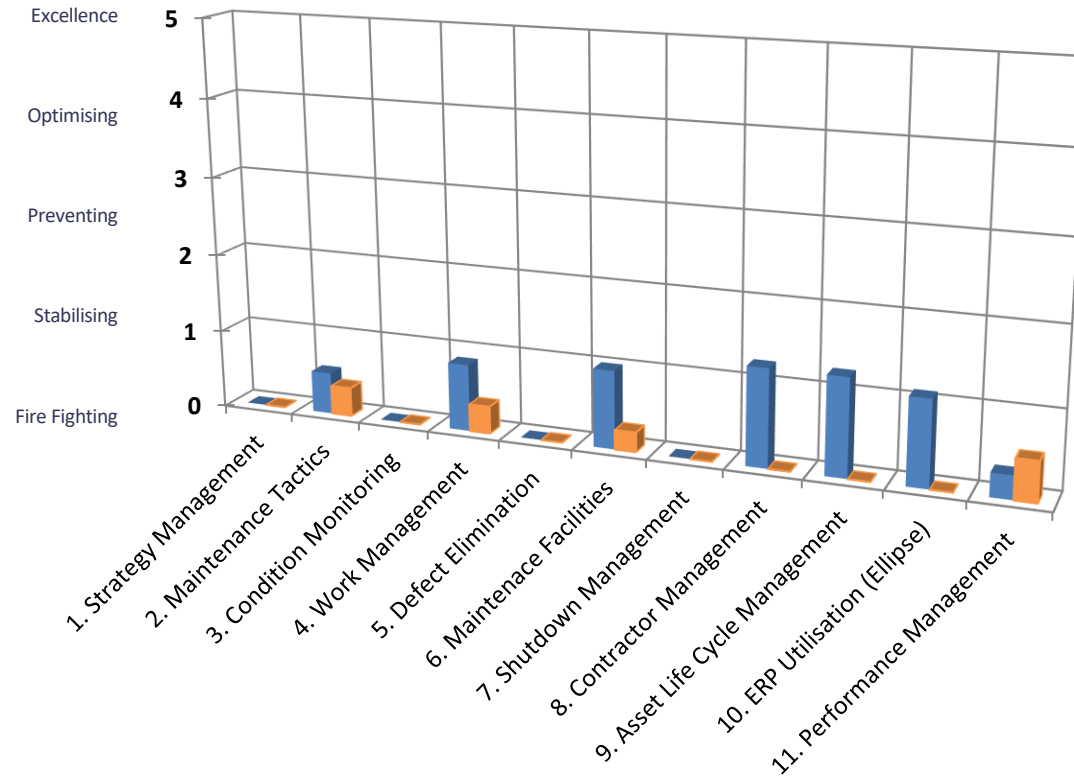
- Maintenance Management Strategy
- ERP Utilisation
- Maintenance Tactics
- Condition Monitoring
- Contractor Management
- Defect Elimination
- Work Planning and Control
- Support Facilities and Tools
- Life Cycle Management
- Shutdown and Outage Management
- Performance Measurement





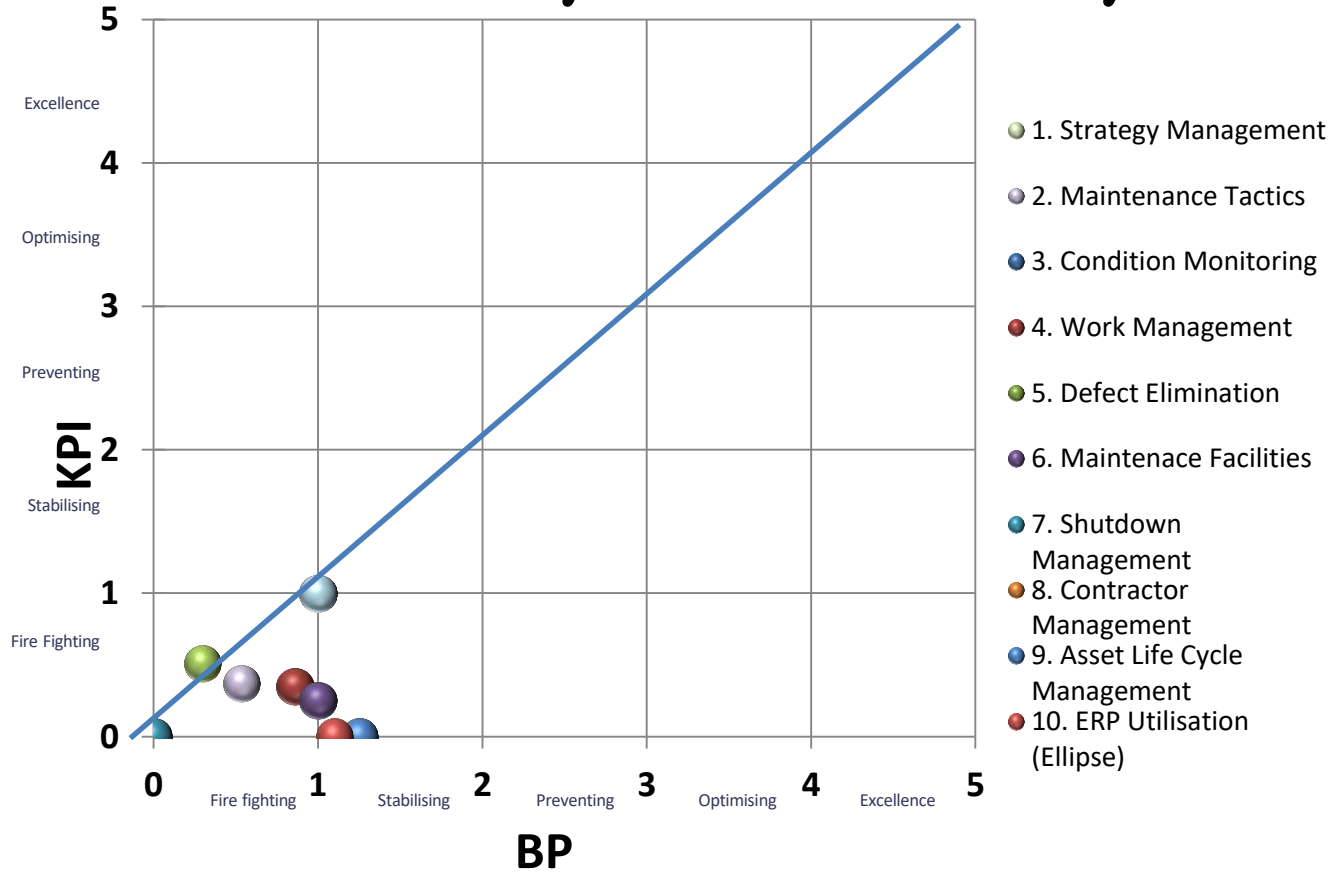
# BP and KPI Maturity

■ BP Maturity





# AM Maturity Assessment Summary





# Asset Management Priorities

- Asset Life Cycle Management (LCM)
  - Restore critical production fleet capacity
  - Mid-Life interventions for critical equipment
  - Component Management
  - Equipment lifecycle & deployment decisions
- Set up a reliability department
  - Appointment of a Reliability Engineer
  - Resourcing of the reliability department with the right skills
- Organisational development
  - Resource the Engineering department with the right skills
  - Asset management training and coaching
- Physical Asset Management Strategy
  - Formulation and implementation
  - Communication and engagement
- Physical Asset Register and Financial Asset Register
  - Cleaning up, Updating, Structuring
- Criticality Analysis: Equipment, Components and Inventory
- Ellipse Implementation and Training
- Work planning, scheduling and control
- Work management and effective quality control
- Maintenance Tactics selection for critical equipment
- Defect Elimination
- Establish SLAs with Key OEMs



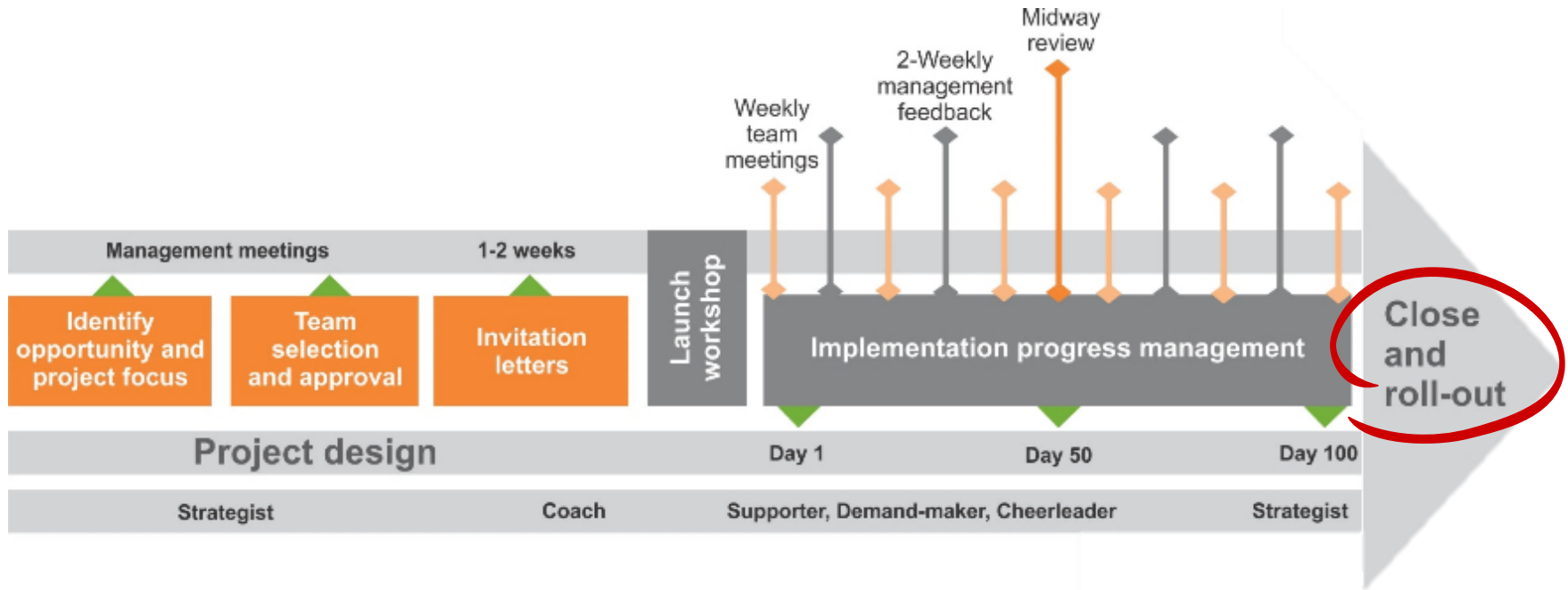
# 100 Day Rapid Results Projects

A 100 day programme to kick-start the year long operational turnaround programme. The ultimate aim is to ensure that the right work is done at the right time and the right way by:

- Mobilising & energising teams
- Shifting the focus onto results .
- Empowering staff to unlock their full potential.
- Delivering sustainable change.
- Inspiring culture change & Motivation.
- Driving innovation & employee ownership



# Rapid Results Roadmap





# Operation XXX

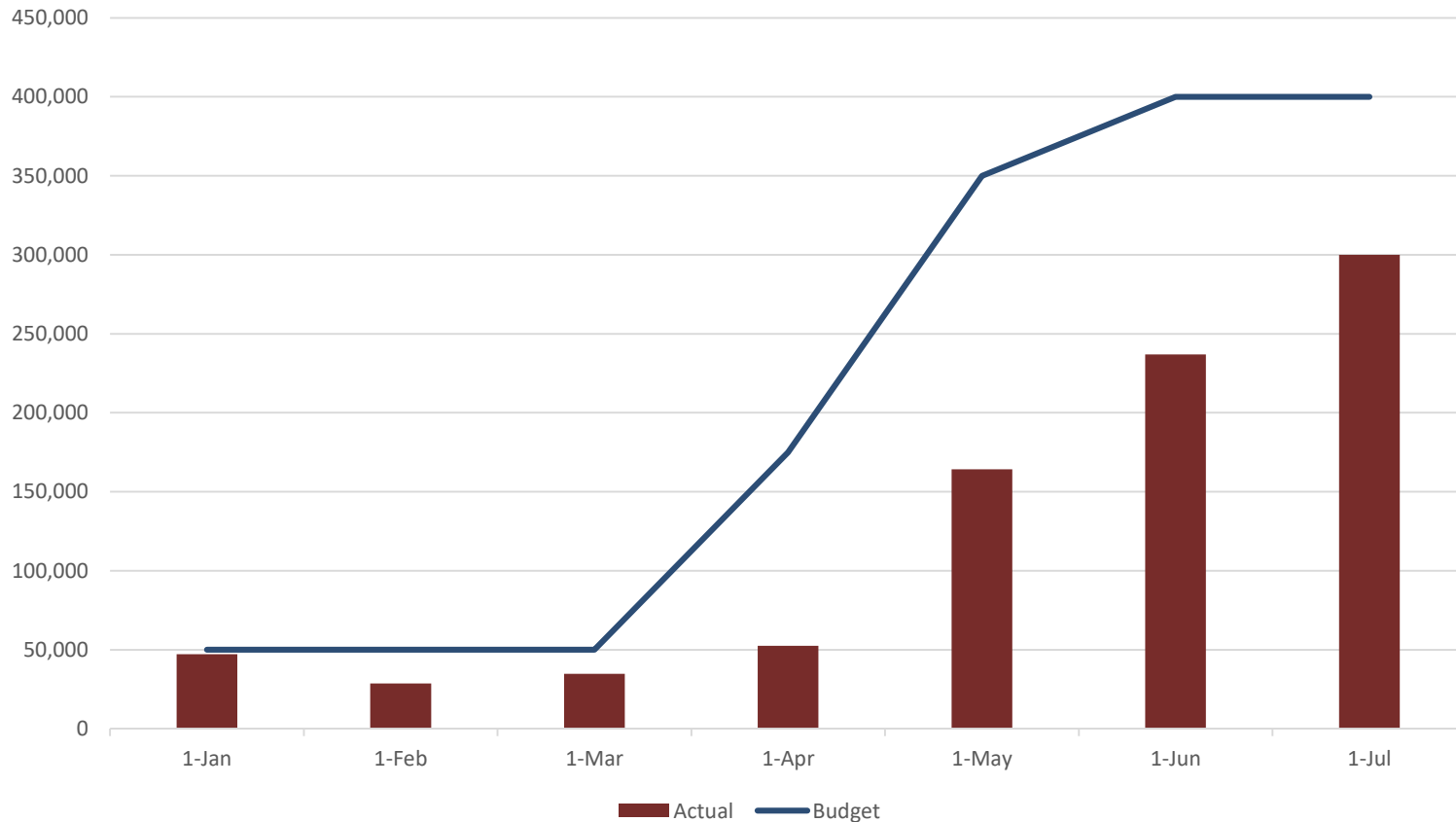
Winning the Hearts & Minds and Empowering our employees





# Results Of Turnaround Strategy On Production

Coal Production Tons 2017



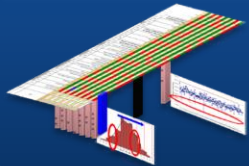
# Agenda



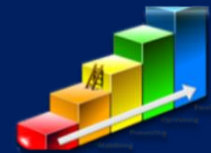
Introduction to Binmak



Turnaround Strategy Steps



Operational Turnaround Strategies



Case Studies

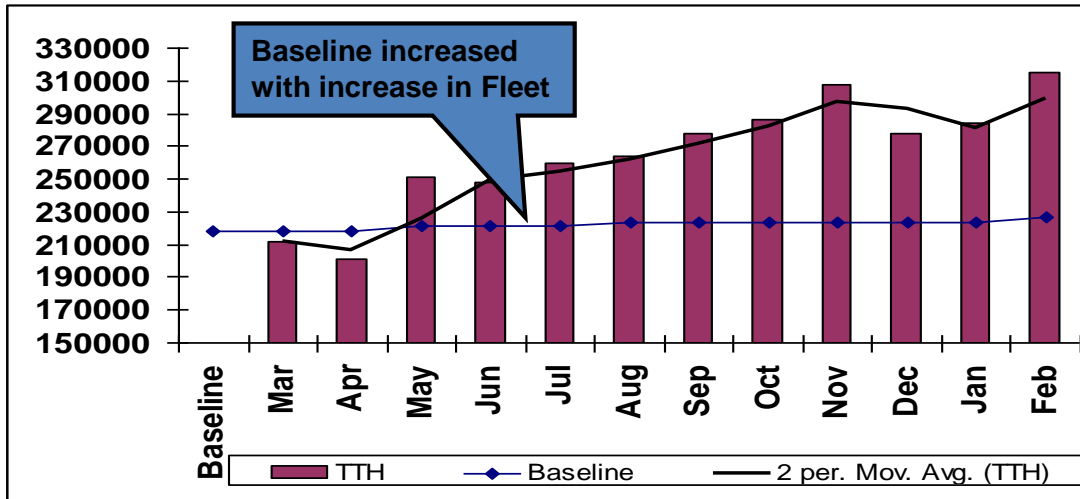


Operational Turnaround Results



# Trucks & Shovels Performance Improvement Project

## Average Total Tons Handled/day



**OEE Improved from 51.1% to 64.8%**

**Total Tons handled increased from 218kt/d to >300kt/d**



### Focus for 2010 :

- Sustain the current performance of Trucks and Shovels
- Focus on Secondary Equipment to support the Increase in OEE's and fleet sizes of mining equipment
- Implementation of Tips of Mining now in implementation at Drilling and Blasting (Pilot)
  - Unmanned Equipment despite over compliment of staff
  - Discipline – how should FLM address generic issues
  - Mining Technical Training Program

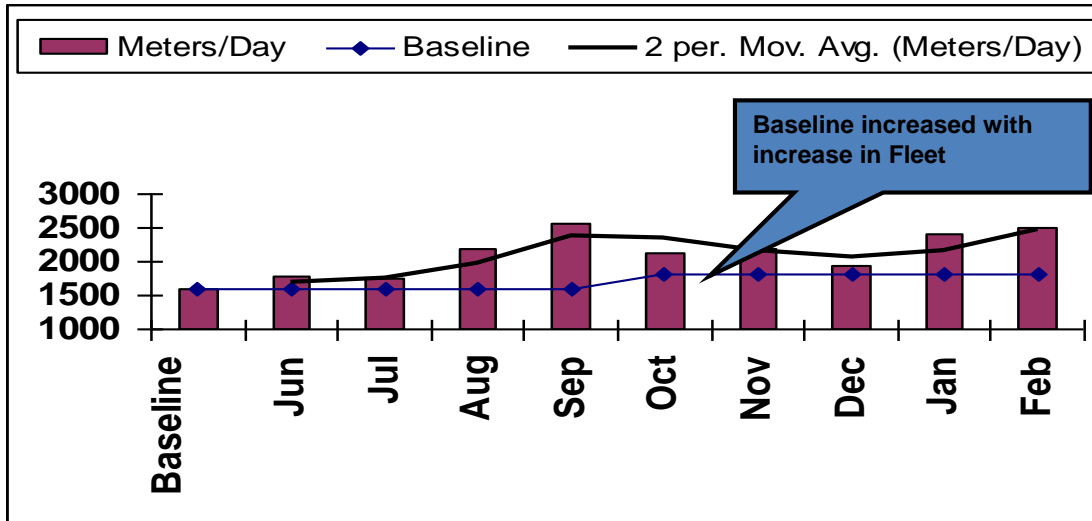
**Baseline Performance = 275t/day**  
**Mining Target for with current fleet and waste aspirations = 320kt/day**

\*OEE – Overall Equipment Effectiveness – Good OEE = 63%, Great OEE = 72%, Benchmark



# Drilling & Blasting Performance Improvement

## Average Meters Drilled/day



**OEE Improved from 39% to 48.1%**

Total average meters drilled increased from 1598m/d to ~ 2350m/d



**BI Target = 2550 m/day**

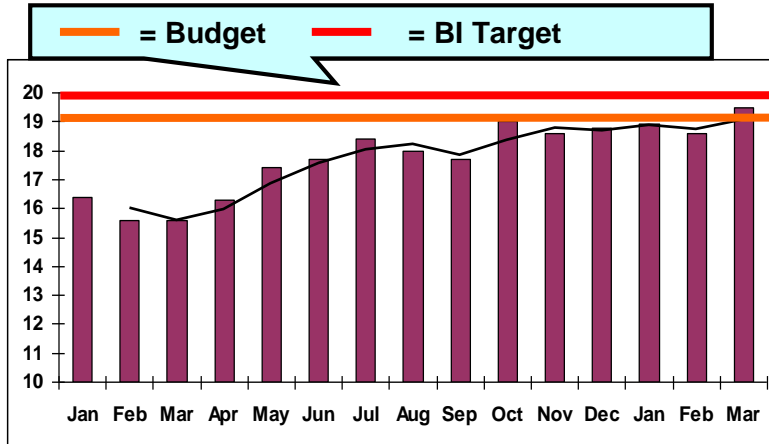
### Focus for 2010 :

- Consolidation of Mining Improvement Projects – Drilling & Blasting pilot section for implementation
  - Unmanned Equipment despite over compliment of staff
  - Discipline – how should FLM address generic issues
  - Operators available to undergo the behavioral workshops
- Block Preparation
- Critical Tasks

\*OEE – Overall Equipment Effectiveness – Good OEE = 50%, Great OEE = 65%, Benchmark

# JIG Plant Performance Improvement Project

## JIG Module Run Hours per week



### Focus Areas:

**Next generation of improvement Projects** to specifically increase the **Run Hours** of the JIG plant to the **Target of 20.5/day**.

- Stackers & Re- Claimers
- Blockages
- Gates sticking & wearing
- RCA
- PAM Strategy

**Run Hours** of Jig Plant improved from **17.1 h/d** to **18.9 h/d**.

**ROM Supply** and throughput increased from **58.7** tot **61.2 kt/day**

**JIG product** increased from **32.5Kt/d** to **> 40Kt/day**

To Achieve budget of **12.6 Mt/pa** we need to have **19.9** Run hours/day.

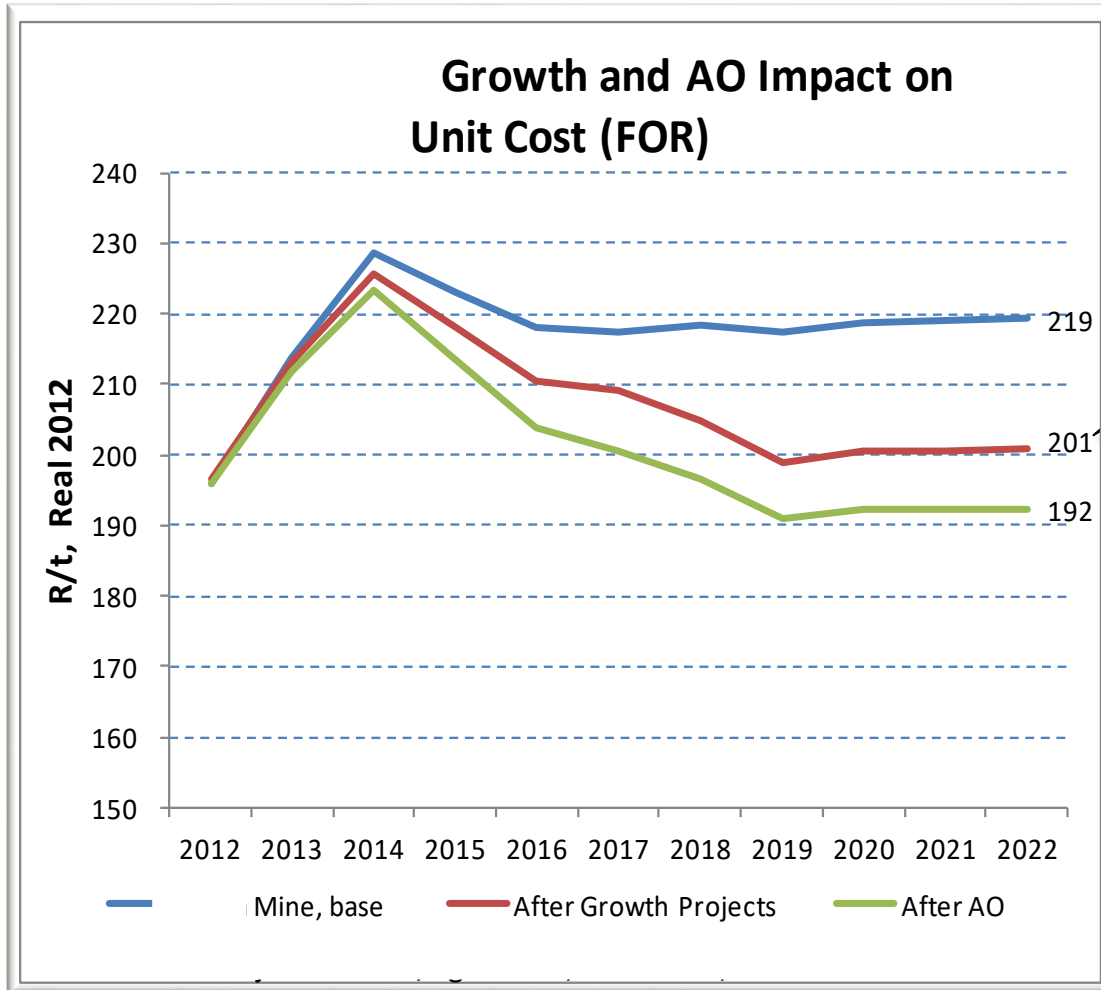
To achieve BI Target of **13Mt/pa** we need **20.5** run hours/day

### Initiatives Implemented

- Increase Shutdown interval from **4 to 6 weeks**, adding **6 prod. days = 240kt**  
(*Changed chemical composition of Secondary Concave Liners*)
- Increase Tertiary Crusher & JIG ROM Supply, by addressing screen efficiencies, liner life, secondary crusher settings and ROM Quantity and Quality supply. **Q4 2009** produced an **additional 103.4kt**.
- Improvements on JIG Level sensors in the hutch tank and reducing the vibration on pump pressure sensors reducing the sensors replaced/m from 25 to 1.75.

# Asset Optimisation Impact on Unit Cost

Implementation of volume growth projects and enhancing fleet efficiencies will reduce unit cost (ZAR Real)

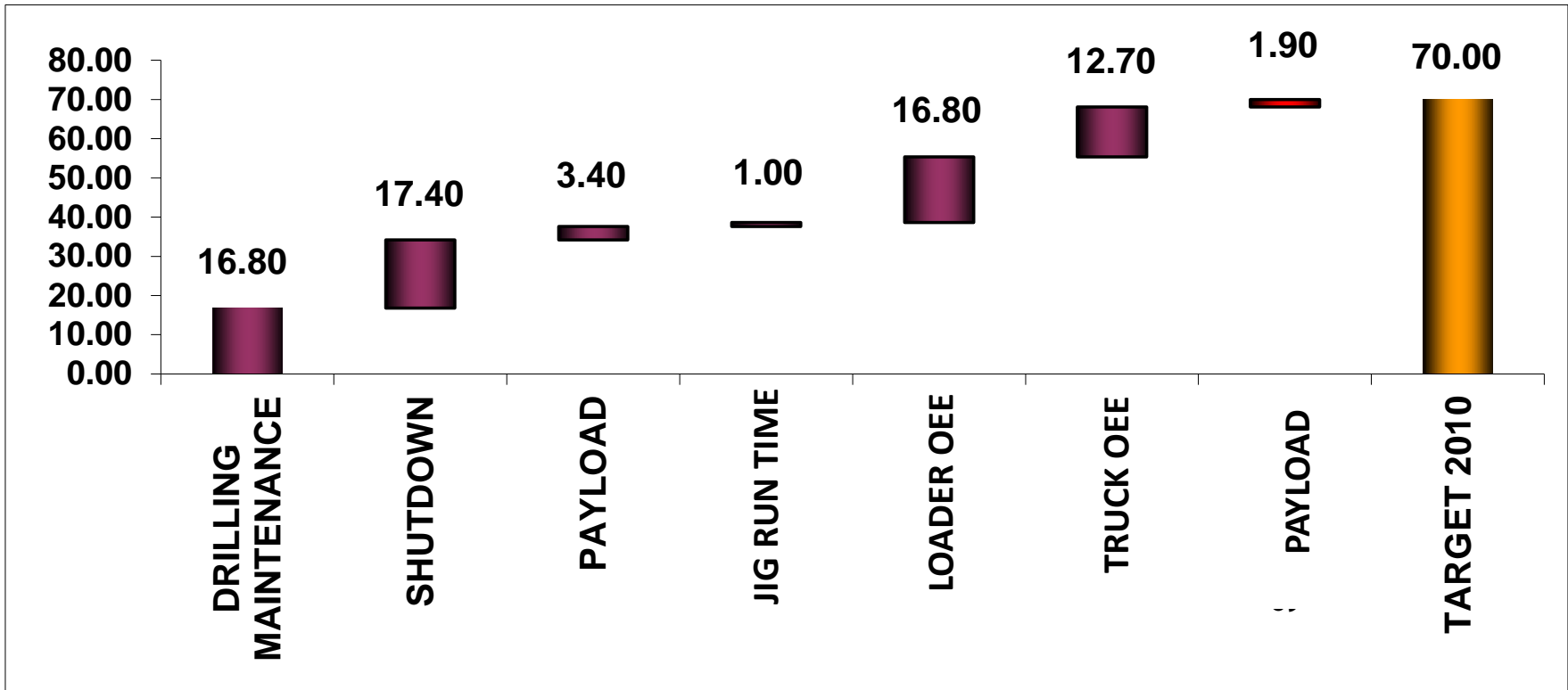


Implementing volume growth projects will result in 9% reduction in unit cost

Enhancing fleet efficiency through AO and phasing out of contractors evident from 2014 will further reduce unit cost by 4%

# Asset Optimisation Value Creation

## Operating Profit \$m Reported From Improvement Projects





# How We Help

- ❑ Strategy Review & Implementation
- ❑ Business Performance Improvement
- ❑ Asset Management Assessments
- ❑ Turnaround Strategy Implementation
- ❑ Business Performance Improvement Training
- ❑ Asset Management Training
- ❑ Integrated Planning & Execution



**Thank you!**