



The Value Case for Good drilling, charging and blasting

The Business Case

Rands and Cents

Costs

- Training
- Equipment

Additional Income

- Increased productivity

Financial Savings

- Reduced explosives
- Reduced drilling
- Reduced waste mined
- Reduced mineral loss

Source of waste in good mining and blasting	
Waste Type	Value
Explosives	1000
Drilling	500
Waste Mined	2000
Mineral Loss	1500
Other	500
Total	5500

Indirect Influences

• Safety

• Environmental

• Regulatory

• Community

• Reputation

People Factors

- Safety
- Environmental
- Regulatory
- Community
- Reputation
- Productivity
- Quality
- Cost



Conclusions

- There is merit in improving drilling and blasting practice
- There are a critical few things that could bring about improvement
- Safety, particularly for safety, will be improved
- Improved drilling and blasting will contribute to sustainability of mines

THANK YOU



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Duncan Adams

13 November 2014



CHAMBER OF MINES OF SOUTH AFRICA
Putting South Africa First



Prezi



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Source of waste in good mining and blasting	
Waste Type	Value
Explosives	1000
Drilling	2000
Waste Mined	3000
Mineral Loss	4000
Total	10000

Indirect Influences

Fracturing

People Factors



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Indirect Influences



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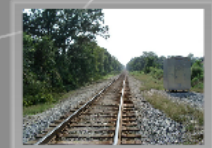
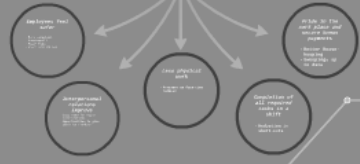
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Source of waste in good mining and blasting	
Waste Type	Waste
Rock	100%
Explosives	100%
Drilling	100%
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Drilling	100%
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Drilling	100%
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Drilling	100%

Indirect Influences

Fracturing

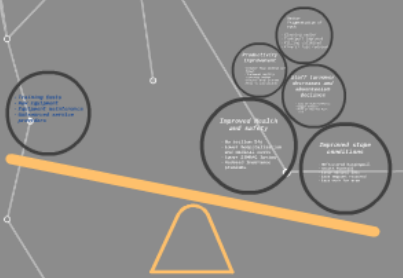
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Example of Benefits of good drilling and Blasting		
	Good	Bad
Stope Panel Length(m)	30	30
Stoping width(m)	1	1
Advance(m)	1	0.8
Rock Density(tons/m ³)	2.7	2.7
Grade (g/ton)	10	10
Grams to ounces	0.03527	0.03527
Mineral loss (%)	0.95	0.8
Non Fracturing the host rock	1	0.9
Dilution (%)	1	0.9
R/\$ exchange Rate	11	11
Mineral price(\$/ounce)	1100	1100
Income (R)	328397.21	179201.17

A network diagram on a grey background. A central black circle contains a black horizontal bar with the text "Indirect Influences" in white. The background features a network of white nodes and lines, with several thick orange diagonal bars and a large grey circular area on the right side.

Indirect Influences

People Factors

Employees feel safer

- More competent hangingwall
- Fewer FoGs
- Fewer section 54s

Pride in the work place and secure bonus payments

- Better House-keeping
- Sweepings up to date

Less physical work

- Pressure on face-time reduced

Completion of all required tasks in a shift

- Reduction in short-cuts

Interpersonal relations improve

- Less need for major interventions
- Opportunities to give positive feedback



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Ground Condition Factors

Fracturing

- Better Footwall conditions
 - Reduced mineral loss
- Better Hangingwall conditions
 - Reduced support

Better Face Shape

- Easier cleaning
- Consistent face to support distance
- Reduced stress raising points
- Reduced face seismicity

Stoping Width Control

- Reduced waste
- Improved mine call factor



*Ground
Condition
Factors*

Fracturing

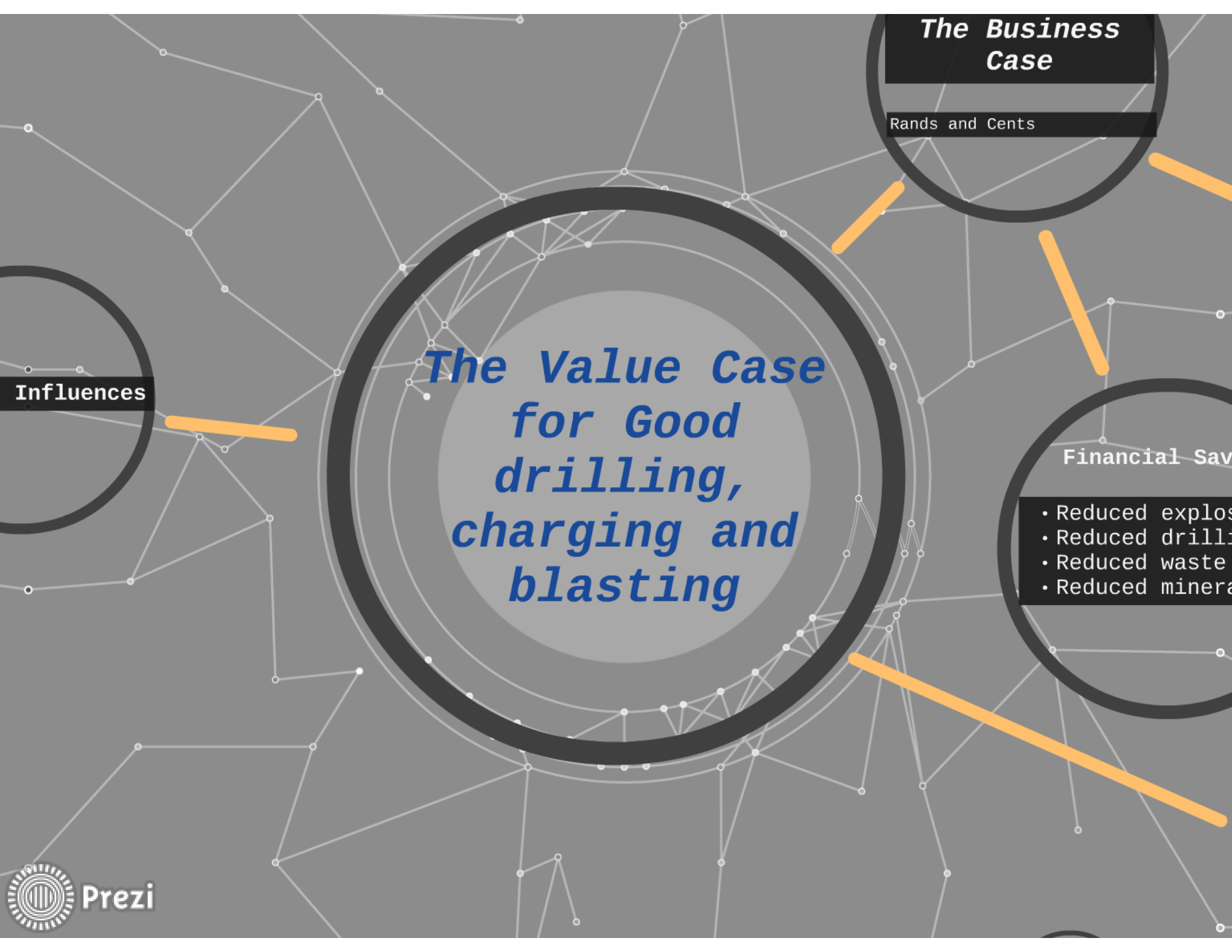
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Influences

- Training Costs
- New Equipment
- Equipment maintenance
- Outsourced service providers

Productivity improvement

- Greater face advance per blast
- Increased monthly centares broken
- Greater mine profits
- Mine is sustainable

Better Fragmentation of rock

- Cleaning easier
- Transport improved
- Milling optimised
- Mineral loss reduced

Staff turnover decreases and absenteeism declines


- Less at-risk workforce
- Bigger bonuses
- More productive face time

Improved Health and safety

- No section 54s
- Lower hospitalization and medical costs
- Lower SIMRAC levies
- Reduced insurance premiums

Improved stope conditions

- Unfractured hangingwall
- Smooth footwall
- Lower mineral loss
- Less support required
- Less work for crew

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 - *Equipment maintenance*
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