

“Money Mining”

Whittle Consulting – Mining & Mineral Processing Optimization

~ Short Course ~

“Increase enterprise value by enhancing planning effectiveness through a complete framework of optimization principles and methods”

PERU – 8th & 9th September 2011, Foresta Hotel & Suites, Calle Los Libertadores 490 San Isidro, Lima 27

(The course will be presented in English with simultaneous translation to Spanish. The course notes will be in both English & Spanish)

Gain the Latest Insights in Business Planning

- Releasing value through better planning decisions – better asset management
- Exploring the latest developments in optimization for the mining industry
- Simultaneously optimizing the whole value chain: mining, mineral processing, logistics, production and capital
- Planning and optimization with geological uncertainty and volatile metal markets
- Operational and cost modeling techniques for optimization
- “Bust the myths” that organizations pursue which limit their economic performance
- Implementing an effective planning process

Increase the value of your mining business by 5% to 35% or more

About your expert trainer:

Gerald has more than 30 years of experience in business planning, analysis and change management in a range of industries in Australia and internationally. As Managing Director of Whittle Consulting (specialists in business optimization for the mining industry) for the last 11 years, Gerald handles optimization project management, optimization strategies and model design, business analysis and management reporting/presentations. Some major clients include Xstrata, Vale/Inco, BHP Billiton, Minara, Lihir, Newcrest, AngloGold Ashanti and Goldfields, covering a range of commodities including Nickel, Copper, Gold, Lead, Zinc, Coal, Iron Ore and Bauxite.

Bringing together important lessons learnt in other industries, including activity based costing and the theory of constraints, Gerald brings new light to the peculiar challenges of business planning and optimization for the minerals industry.



Gerald Whittle
BEcon, GradDipFin, FCPA, MAusIMM
Managing Director,
Whittle Consulting Pty Ltd, Australia



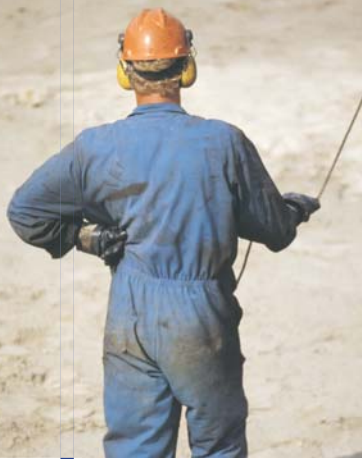
WHITTLE CONSULTING
BUSINESS OPTIMIZATION FOR
THE MINING INDUSTRY



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Previous attendees' comments:

"I have been putting what I learnt at the course into practice and as a result we have added a significant amount to the NPV in our recent business plan"

"There were lots of new insights and ideas presented which can change the way we have done our planning in the past."

"Every serious mining professional should attend Gerald's Mining and mineral processing optimization seminar. In 2 days he changed 25 years of traditional mining thinking and principles. Beware, this dynamic and inventive thinking will change everything ever believed to be the norm in optimization and mine planning. No feasibility study should be done without these principles."

"Well organized, relevant and challenging existing paradigms."

"Certainly opened my mind to new and different approaches to business optimization."

"Very useful, opens my eyes on the potential that exists in my current operations."

Increasing the value of your mining business by 5% - 35% or more!

OVERVIEW: Effective long term planning can enhance the value of a minerals business by 5%-35% or significantly more. This course details an optimization methodology that involves 10 distinct mechanisms, which when applied simultaneously can produce counter intuitive results that challenge conventional thinking on how to run a mining and mineral processing business. Covering the latest developments in optimization methods, the subjects span mine design and scheduling, cut-off grades and stockpiling, plant configuration, product specification, logistics and capital scaling, a comprehensive approach to managing risk and uncertainty, strategic optimization and modeling techniques, theory of constraints as it applied to a minerals business, advanced cost modeling, and implementation/change-management. The result is a comprehensive approach to asset management.



This course will change forever the way you look at your mining business!

WHO SHOULD ATTEND:

This course is designed for decision makers including:

- senior executives
- directors
- department, divisional or project managers
- professionals who are currently, or will be, involved in the technical aspects of optimization analysis
- investors and their advisors

IT IS RELEVANT TO:

- geologists
- mining engineers
- process engineers and metallurgists
- logistics managers
- marketing managers
- finance and HR managers

(This is not a software course.)



It shows how these disciplines can take the economic view of the business and coordinate their activities to extract value that is currently concealed between the organizational silos that the management structure creates.

It is also relevant to equity analysts, venture capitalists, fund managers and investment bankers who want to better understand the drivers of value in a minerals business, and **to be able to recognize where the full potential of a business has not yet been realized.**

The principles examined are applicable to Copper, Gold, Lead, Zinc, Iron ore, Coal, Diamonds, Bauxite, Manganese, Platinum and other commodities. Pit, underground and complex portfolios of assets are covered.

COURSE CERTIFICATE: A Certificate of Completion will be awarded to all participants completing 90% of the total course hours.

OUTCOMES OF THE WORKSHOP: By the end of this intensive two day program, you will take back to your organization fresh views of how economic value can be generated. You will be able to recognize the real drivers of value, and how flexibility in all parts of the value chain can be harmonized and exploited to increase value and robustness of the business in the face of uncertain resources, technical challenges and volatile metal markets.

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**Attention Business Leaders – Don't make another business decision
 until you have considered these perspectives!**

Zimi Meka, CEO of Ausenco Limited – “Whittle Consulting is recognized as the world leader in the field of optimization for mining companies – this seminar is of relevance to all decision makers in the industry”

Cindy Tonkin, Technical Product Manager, Gemcom Software – “This seminar introduces the concepts of simultaneous optimization – of significant value for mining and mineral process business planning”

COURSE OUTLINE DAY ONE

8.00	Registration and Coffee
8.25	Opening Remarks
8.30	1. INTRODUCTION
	<ul style="list-style-type: none"> • Introductions/Objectives/Agenda • The “Money Mining” concept • Why is it important? • Group discussion: pros and cons of NPV • Open Pit Case Study: Introduction
10:00	Coffee Break
10.15	2. OPTIMIZATION MECHANISMS Steps 1 – 6
	<ul style="list-style-type: none"> 0. Base Case life of mine plan 1. Pit optimization: Lerchs-Grossman 2. Phase/pushback selection 3. Mine schedule 4. Cut-off grade 5. Stockpiles 6. Simultaneous optimization
12:00	Lunch
12:45	3. OPTIMIZATION MECHANISMS Steps 7 - 10
	<ul style="list-style-type: none"> 7. Process plant calibration 8. Product specification 9. Logistics 10. Capital scaling • Summary of NPV “Waterfall” graph • Implications
14:30	Coffee Break
14.45	4. ASSET PORTFOLIO OPTIMIZATION
	<ul style="list-style-type: none"> • Multiple pit operations • Mixed pit and underground mines • Multiple/alternative processing streams • Multiple/alternative products • A complex mine logistics example • Lessons learnt from optimizing these cases • Managing the optimization process
15:30	5. RISK AND UNCERTAINTY Step 11
	<ul style="list-style-type: none"> • Sources of uncertainty • Modeling and measuring the impact of uncertainty • Managing in changing circumstances • Optimizing with uncertainty • Managing the Monte Carlo process • Implications for the planning process
16:15	DISCUSSION/QUESTIONS
16.30	End of Day 1

COURSE OUTLINE DAY TWO

8:00	Coffee
8:30	Comments/observations from day 1
9:00	6. UNDERGROUND CASE STUDY
	<ul style="list-style-type: none"> • Grade tonnage curves • Stope design criteria • Mine scheduling • Cut-off grade strategies • Maximizing value • Implications
10:00	Coffee Break
10.15	7. COST MODELLING
	<ul style="list-style-type: none"> • Types of cost accounting • Fixed/variable/capital costs • Activity Based Costing • Attributable/period/capital costs • Identifying period/time/fixed costs • Frontline/support/backline activities • Identifying activity cost drivers • Sustaining capital • Group exercise
11:15	8. OPTIMIZATION MODELING TECHNIQUES
	<ul style="list-style-type: none"> • Block Models • Grade Bins • Grade Control • Blending
12:00	Lunch
12:45	9. CONSTRAINTS AND BOTTLENECKS
	<ul style="list-style-type: none"> • The production line • Impact of bottlenecks – Theory of Constraints • Mining case study • Implication 1: Defining limits • Implication 2: Treatment of period costs • Implication 3: Grade control methodology • Case Study
14:30	Coffee Break
14.45	10. CASE VARIATIONS
	<ul style="list-style-type: none"> • Other commodities • Pits versus underground • Effect of changes in metal prices
15.15	11. DEVELOPING A “MONEY MINING” CAPABILITY
	<ul style="list-style-type: none"> • Technical barriers – data, software • Organizational barriers • The ideal planning process • Implementation strategies • Change management • Personal action plan
16.15	Closing
	<ul style="list-style-type: none"> • Summary • Possible next steps • Feedback questionnaire • Certificates
16:30	End of Course

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REGISTRATION FORM

Please fax or email your completed registration form to:

Stephanie Sweetman, Marketing Manager, Whittle Consulting Pty Ltd

Email: stephanie@whittleconsulting.com.au Facsimile: +61 3 9898 1855 Telephone: +61 3 9898 1755

Personal Details

Title: Given Name: Surname:

Name (as wanted on name badge, if different from above):

Position Title:

Organization:

Address:

City: State/Province: Country: Zip/Postal Code:

Business Phone: Mobile Phone:

Fax: Email:

Dietary requirements:

Other special requirements (i.e. mobility):

Course Registration & Fees

PERU, 8th & 9th September, 2011 – Standard Registration

☐ \$1200 USD

☐ Special Registration Discount: When two or more participants register from the same company, any additional participants from that company will receive a 50% reduction in course fees. Please tick the box if the special registration discount applies to your registration.

☐ Student Registration Offer: Whittle Consulting will grant 2 complimentary student registrations per course. If you wish to apply for a student place, please complete this registration form and mark the student registration offer tick box. A brief summary on why you are interested in attending the course is required along with your application. Applicants will be notified approximately 2 weeks prior to the course commencement date.

Payment Details

Payment must be received by WIRE / BANK TRANSFER and is required to confirm your registration.

Whittle Consulting will issue you an official TAX INVOICE with bank account details upon receipt of your registration form.

All cancellations must be received in writing to the course managers. Any cancellations received 4 weeks prior to your course will be refunded 75% of the registration fees paid. Cancellations received 2 weeks prior to your course will be refunded 50% of the registration fees paid. Any cancellation received within 2 weeks of your course will not receive a refund of fees – name changes are allowed.

A confirmation letter confirming your registration will be emailed to you. This email will include any further advice and important information pertaining to your course prior to your arrival.