BEX Structured Products (Pty) Ltd

ABOUT BEX:

BEX Structured Products ("BEX") is a professional service advisory business that specialises in business enterprise optimisation using financial modelling, derivatives and engineering techniques.

BEX works with the executives of leading South African and multinational corporations to solve their most important, complex and recurring challenges; and to exploit their opportunities. In so doing we are able to add sustainable, verifiable and significant value to clients.

Where appropriate BEX will advise on capital raising utilizing either debt or equity funding. In this regard BEX, has significant experience in funding all aspects of industrial, financial, insurance, telecoms and marketing businesses as well as having participated or advised in transactions in the mining and property sectors.

OUR EDGE:

We differentiate ourselves by always employing rigorous financial techniques and technologies, fused with an intimate understanding of the practical business context and detail. It is through this fusion that we are able to advise our clients on a course of action that is value enhancing and cost effective and at the same time feasible to implement. This enables them to practically attain their objectives in the most efficient and effective manner.

Merely being 'strategically' or 'directionally' correct is insufficient for us. We operate in a world of deliberate precision, and absolute accuracy. Our task is to embrace complexity and then refine it into objective clarity.

BEX operates through an established network of professional partners to deliver client focused solutions thus providing access to some of South Africa's leading corporate financiers, engineers, mathematicians, actuarial scientists and software programmers, working seamlessly across their respective disciplines in order to deliver advice to clients that will result in significant and tangible value.

We define optimisation as:

A rigorous scientific process designed to discover the configuration of components of a business system (enterprise and/or industry) that will result in greatest achievement of the desired outcome or objective function.

OUR CLIENTS:

Some of the Optimisation projects that BEX and our partners have been involved in historically:

Within the Long Term Asset Optimisation Realm:

Client	Engagement Summary
Major Mining Multi-Commodity Conglomerate	Development of probabilistic capacity models for the validation of production plans and business cases for new investments
Major Mining Multi-Commodity Conglomerate	New Mining Technologies in Rock Cutting – Scenarios were designed to formulate business cases for different rock cutting technologies relative to other conventional mining methods
Major Platinum Producer	Modelling, optimisation and the implementation of new mining technologies and methods in the mining industry, Financial Analysis, Strategy, Stochastic scheduling & analysis (Risk Management), Extensive layout design & analysis of New Mining Technologies, Implementation of New Mining Technologies & Mining Methods within the Mining Industry, development of a Management Operating Systems for Underground Mines, Operational Time Studies, Analysis & Mining Method Optimisation, Mining Method Visualisations.
Major Platinum Producer	Probabilistic analysis of underground operations' production schedules using Monte Carlo techniques to validate their long term plans.
Major Global Gold Producer	Production scenario planning for several key mines.
Major Platinum Producer	Half level optimisation and costing.
Major South African Gold Producer	Life of Mine scenarios - the development and implementation of detailed NPV and cash flow models focused on evaluating multiple what-if scenarios for their competent persons report at all their Underground Gold operations.
World Leader in Alloying Metals	Opex modelling of a new investment in South Africa of the French based company.
Major Open Pit Platinum Mine	Expansion Validation - Using stochastic discrete event simulation, Cyest tested the feasibility of a 25 - year life of mine plan. The purpose was to determine whether the mine could deliver sufficient material to support the planned plant expansion. Our team determined the confidence level associated with the target, and recommended specific interventions to raise the confidence to an acceptable 80% level. As a result, the mine now plans to use stochastic discrete event simulation to validate their short – term plans as well.

OUR WORK:

Examples of different optimisation scopes:

Capital Optimisation

The objective functions here could be Maximise Value (NPV); or Maximise Returns (ROCE, ROI, etc.) or Maximise Capital Efficiency (economic profit); or minimise Risk.
And the constraints would typically include – capital (funding), availability of investment pipeline, etc.

Asset Optimisation

Asset Optimisation occurs after the investment decision has been taken (during the capital optimisation stage) and the problems tackled here refer to how the assets (plant and equipment) can be configured to achieve the desired objective function.

Examples of sometimes-conflicting objective functions here include goals such as – maximising asset life, ensuring the lowest unit cost, or yielding the greatest return, highest short-term profitability etc. Examples in this realm would include – the design and layout (of a plant, a mine, a logistics network); the allocation and scheduling of assets, etc.

Resource Optimisation

This realm of optimisation is the most operational / granular and occurs once the assets have been decided upon and configured during the asset optimisation exercise.

Resource optimisation refers to how resources are organised around the assets in order to for example – minimise unit cost, or minimise total cost, or increase margin, or maximise profits, etc.

In other words the asset configuration and physical capacity becomes the constraint around which resources must be organised. Examples of decisions in this realm include – resource type, quantum and allocation; production schedule, etc.

Within the Operational Resource Optimisation Realm:

Client	Engagement Summary
A Leading Global Export Coal Group	Capacity analysis for Load and Haul operations using Discrete Event Simulation to establish unit cost reductions of 20%.
A Leading Global Export Coal Group	Development of fleet management diagnostics using Android devices to assist in parking haul trucks.
Major Platinum Producer	Design of an underground mechanised mining management operating system for piloting new mining methods and technologies.
Major Diamond Producer	Value Driver Tree implementation and support for operational diagnostics purposes of an open pit mine.
Major Mining Multi-Commodity Conglomerate	Development of a virtual reality centre to deliver enterprise wide experiential learning to 1,500 people per year.
South African Ferro Chrome Producer	Production and Budgeting model - development and implementation of budgeting model for a Ferro Chrome processing plant.
Major Diamond Producer	Implementation of a plant model to track operational progress, activity based costing, scenario analysis and blend optimisation.
Large Copper Operation	Developed a model allowing the planners at a large open cast copper mine to schedule trucks and shovels that would allow for maximum production efficiency and allow the planners to quickly optimise the value chain on a shift level basis across the value chain.
Leading Iron Ore Producer	Built a capacity analysis model for an iron ore mine that allowed them to identify constraints and opportunities to increase production by 15%.
Major Platinum Producer	Development and implementation of detailed OPEX cash flow model focused on evaluating multiple what-if scenario for new projects.
Major New South American Iron Ore Operation	Mining simulation – The operation had developed a production ramp-up plan for their new processing facility. The question was, what would be the equipment requirements to meet this plan with adequate confidence. Using stochastic discrete event simulation techniques, Cyest Analytics determined the correct fleet sizing to deliver ore with 80% confidence. Additionally, we showed the incremental benefits of additional equipment. The mine continues to use the model to validate its short - term planning.
Major New South American Iron Ore Operation	Plant simulation - In conjunction with the mining simulation, the operation required a plant simulation model that would validate the production ramp - up plan, and also quantify the likely impact on production of various risks that the operation had identified. Using equation - based modelling and Monte Carlo techniques, Cyest Analytics delivered a system that would fulfil this role. The operation continues to use this model to test their ramp - up strategies and steady - state delivery expectations.

Within the Capital Raising Realm:

BEX has successfully been involved in capital raising for privately owned and Public Companies across a number of sectors and industries. Our success in this area of business is a result of our long-standing and trusted relationships with financial institutions and "High Net Worth" family offices both in South Africa and Europe.

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