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Project valuation, capital investment and strategic alignment—tools and techniques at Anglo Platinum

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Central to the success of any mining company is the ability to manage capital investment effectively so as to ensure acceptable stakeholder returns within an overall strategic context. Critical to this process is the effective selection and implementation of a strategically aligned project portfolio that enables optimal resource exploitation while operating within mandated bounds and identified constraints.

Consideration is given to the strategic long-term planning process, an investment prioritization methodology and specific tools and techniques based on the discounted cash flow philosophy.

Introduction

Central to the success of any mining company is the ability to manage capital investment effectively so as to ensure acceptable stakeholder returns within an overall strategic context. Typically a mining company investment portfolio would encompass options ranging from geological exploration through to market development. A key challenge is thus to ensure the alignment of investment with strategic intent while ensuring that the day-to-day viability of operations is not compromised.

Critical to this process is the effective selection and implementation of a strategically aligned project portfolio that enables optimal resource exploitation while operating within mandated strategic bounds and identified constraints.

This paper describes the processes, tools and techniques applied at Anglo Platinum Limited to value and select investment options, with a focus on the mining and projects environment, to ensure strategic alignment of capital investment.

Strategic long-term planning at Anglo Platinum

Mining operations within the Group develop and articulate a mine strategy, from which a mining right plan (MRP) is developed and the long-term plan (LTP) extracted. Each step in the process is a path along a decision tree with choices being identified, rationalized, motivated and implemented.

The relationship of these integrated planning elements within the overall strategic planning process is represented in Figure 1.

Mine extraction strategy (MES)

The mineral resource forms the fundamental asset of any mining company. In order to optimize economic return (viz. to maximize net present value 'NPV'), clarity is required on:

- How the entire mineral resource associated with the mining right area is to be exploited
- Over what time period, and
- At what cost (capital and operating).

The mine extraction strategy sets the context in which all other strategic planning is done. Key issues that must be addressed are:

- Optimal scale of operations
- The associated tonnage source split from multiple reef horizons
- Technology selection and associated mining layouts
- Critical constraints, e.g. water supply, tailings disposal
- The influence of existing asset base, e.g. timing to optimal rate and split
- Identification of consequences for downstream recovery processes and other critical interfaces such as skills resourcing.

The mine extraction strategy thus informs the nature of the mining right plan specifically; optimal scale, associated reef mix (where multiple economic horizons occur in a mining right area), basic infrastructure options and critical constraints.

It is important to note that the mine extraction strategy is not 'the plan' but a clear, motivated statement of the basic rules that will guide development of the mining right plan and the subsequent long-term plan upon which investment decisions will be made.

Mining right plan (MRP)

This is a physical depletion plan that covers the area over which a mining right has been granted in terms of the Mineral and Petroleum Resources Development Act (MPRDA). The MRP is driven by the mine extraction strategy (scale of operations, layouts, existing asset base, associated reef split, constraints). As such it is not time limited and will have a life span, resulting from the optimal scale of operations as identified in the mine extraction strategy.

It is not necessary that the MRP be economically viable across the full life span but rather that the full extent of the mining right is planned out in a technically defensible

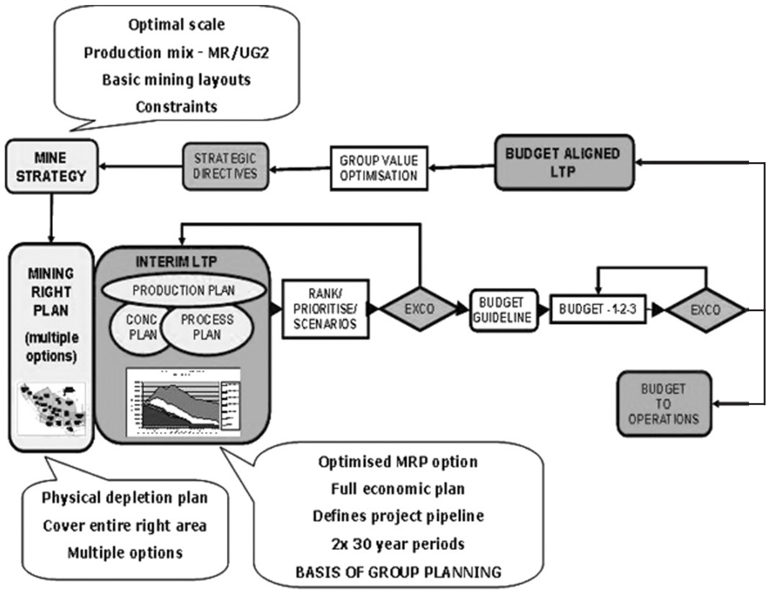

Figure 1. The integrated strategic long-term planning process

manner using appropriate capital and operating cost estimates, and the prevailing global planning parameters. Several options (normally extraction sequencing) should be developed in order to identify an optimized (maximized NPV) plan.

The planning horizon of the MRP must cover the entire mining right area—viz. it is not time constrained but area constrained. The MRP is reviewed and updated annually as part of the long-term planning process.

Long-term plan (LTP)

The long-term plan, which comprises production, operating cost and capital cost estimates for the life of the operation or the first 60 years (two periods of 30 years), whichever comes first, provides the basis from which requirements for concentrating, smelting and refining capacity are estimated. Two 30-year periods are considered as 'new order' rights granted in terms of the MPRDA are initially granted for 30 years with a right of first refusal for a further 30-year renewal period.

The LTP is a full economic plan indicating the optimized exploitation option selected from the MRP. Support infrastructure and service requirement forecasts are based on the production profile and project pipeline as defined in the long-term plan.

The LTP is updated twice a year (interim and budget aligned final) for level 1 plans, and quarterly for all projects in execution in level 1 and any unapproved projects at study levels 2a, 2b, 2c and 3 categories (Andersen *et al.*, 2005).

- *Level 1*—model's are effectively current operations and approved projects (in implementation/execution phase) that have all the necessary capital expenditure already approved and thus require only the necessary stay in business capital expenditure for the balance of its life.
- *Level 2*—models are proposed capital investments or projects and are divided into 3 sub-categories (a, b and c), which are related to the confidence stage that the respective proposed capital investment or project has last been reviewed. These sub-categories are governed by a stage-gate review and approval process and comprise:
  - Level 2a Feasibility study = ± 10%
  - Level 2b Pre-feasibility study = ± 15%
  - Level 2c Conceptual study = ± 25%
- *Level 3*—models effectively cover the remaining extent of potentially exploitable resource within the area covered by the current mining authorization and are, at best, scoping studies (not yet a project in the stage-gate review process) at a confidence level of > ± 30%).

The LTP forms the basis of the Group production and cost (operating and capital) forecasting and is used for capital prioritization and value optimization.

Capital prioritization process

The long-term plan provides a forecast of production, capital and operating costs across existing operations and the project pipeline at a range of confidence levels from scoping to feasibility study. This portfolio is consolidated across the Group and further categorized on the basis of defined strategic objectives such as retention of mineral rights, critical path projects, sustainable development and targeted growth rates. Investment options are further prioritized on the basis of forecast value within the confidence level sub-categorizations of each logical grouping.

Individual projects thereafter compete, within a common confidence estimate categorization, with each other on the basis of value and rate of return (where applicable). This categorization approach is indicated schematically in Figure 2 in which base, target, growth and all-in scenarios are developed. Scenario criteria are based on strategic objectives relating to dimensions such as market supply/demand dynamics and associated metal pricing forecasts, overall business returns and targeted debt/equity ratios.

Concentrating, smelting, converting and refining projects are identified and motivated to match forecasted production outputs and timescales. Individual Process Directorate projects compete with each other on a trade-off study basis to ensure that the optimal value solution is developed to meet anticipated production levels. Capital requirements for these projects is defined and associated with specific forecast production levels, time lines and scenarios.

In this approach competing investment options are logically grouped, like compared with like, values assessed and ranked within an overall prioritization framework, which is completely aligned with strategic imperatives.

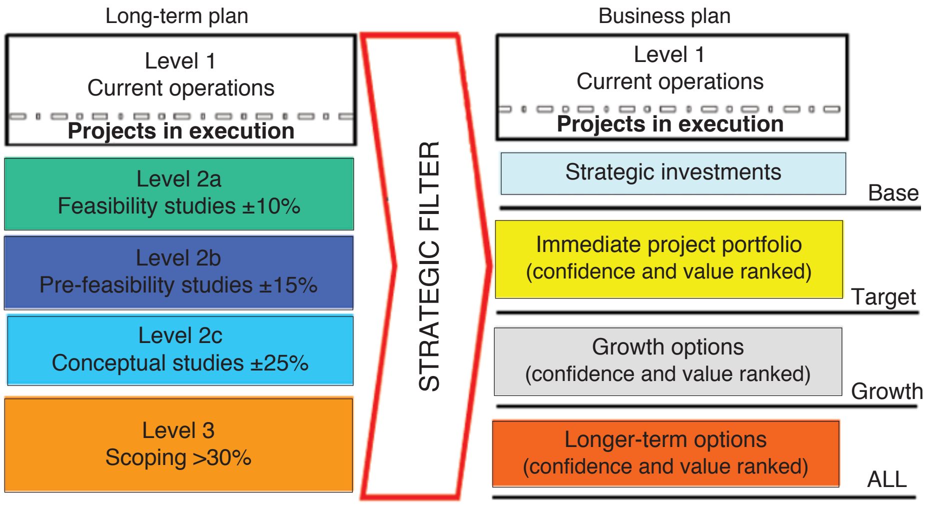

Figure 2—Long–term plan to business plan—categorization and ranking (adapted from Smith and Pearson-Taylor, 2006)

Tools and techniques

The tools and techniques applied by Anglo Platinum Limited to value and select investment options to create a company production portfolio are largely predicated on the use of discounted cash flows.

Estimation of value—discounted cash flow technique

Discounted cash flow analysis provides a means of relating the magnitude of all expected future cash flows to the magnitude of the initial cash investment required to purchase the asset and develop it for commercial purposes. The objective of discounted cash flow analysis is to determine:

- The net present value (NPV) of a stream of expected future cash flows;and
- The rate of return (IRR) which the expected future cash flows will yield on the original cash investment.

Within this context NPV was initially applied to capital investment decisions with later application as a guiding principal throughout the mine planning process as the principal determinant of value assessment. The realization that planning options that demonstrate increments in value, have the potential to create value for the business, and are generally cumulative, has rapidly led to the concept of value maximization or 'optimization' of strategic mine plans, with the term 'optimization' largely coming to mean 'maximization of plan NPV' in the minerals industry.

IRR and NPV

Value accretion from an investment option occurs when the NPV > 0 and the IRR > selected hurdle rate, where the hurdle rate is determined by considering a minimum rate of return in conjunction with a variety of risk premiums—operational, project and country. In general larger NPV and IRR values indicate better returns and inherently lower risk of value destruction.

Value accretion from individual projects should, however, always be considered in the context of the largest logical decision making unit, e.g. a mining complex rather than a single shaft basis in order to accommodate interdependencies. A project may not necessarily have a positive NPV when evaluated on a stand alone basis, however, value may be derived from the benefit this project affords the rest of the complex through the sharing of infrastructure and hence the dilution of fixed costs (Ballington *et al*., 2005).

Money terms

Due to the nature of mining taxation and its treatment of capital investment, it is essential that project cash flows are initially calculated in nominal terms, so that accurate taxation can be computed and included, prior to de-escalating to real terms for discounting to present values.

This valuation is normally achieved when modelling by inputting values in real money terms (regardless of when in the future the income or expense is to occur) and then computing nominal terms through escalation factors (different rates for revenue, material cost, labour cost and capital) to facilitate taxation computation. Furthermore, cognizance of the real changes in capital expenditure, due to the imported component's future inflation and the exchange rate, needs also to be taken into consideration. The calculated after taxation nominal cash flows can then be adjusted for domestic inflation into real terms, and the NPV calculated at an appropriate real discount rate.

Discount rate

The discount rate (the hurdle rate) is the rate used to calculate the present value of future cash flows. Discount rates can be in nominal or real terms and must be clearly stated (money terms and rate). Use of real discount rates is advocated as good practice as:

- Most investment evaluation assumptions will be developed initially in real terms and
- By applying a real discount rate to real cash flows, the risk inherent in nominal terms valuations (i.e. the mismatch between the inflation rate assumed in the derivation of the discount rate and the inflation rate assumed in the cash flows projections) is avoided.

Currently the South African economic environment indicates an appropriate real discount rate of 9%–12% for mining projects, viz.:

- minimum acceptable rate of return of 8%–10% (real)
- project risk rate of 1%–2% (real) and
- country risk rate of zero for projects funded from local sources.

This equates to a nominal weighted average cost of capital of 14.5 %–17.6 % at a 5% annual inflation rate.

Global planning parameters

Cash flow estimates used in discounted cash flow analyses are fundamentally derived from estimates of revenue, operating cost and capital cost. Extensive effort is directed at estimating costs (both operating and capital) to accuracy levels of <10% error. Similar degrees of rigour are applied to tonnage, grade and recovery estimates, in order to achieve comparable levels of accuracy in recovered metal estimation.

Similar rigour should be applied to the assumptions made relating to metal (commodity) prices, exchange rate, inflation rates (domestic and foreign), and escalation (capital expenditure and operating expenditure) factors. On the assumption that these global parameters are usually rigorously determined for a five-year period and then maintained at long-term trend estimates, the adoption of an optimistic or pessimistic long-term perspective will have a significant effect on projects with 10–15 year life spans. (Ballington and Smith, 2002).

The risk of value destruction resulting from not undertaking viable projects because of a pessimistic long-term view is best addressed through scenario evaluation and risk profiling.

The 'hill of value' concept

Mineral resources are finite and non-renewable. The optimum exploitation strategy therefore needs to be dynamic due to the continual changing of commodity prices, rate of extraction and life of mine over time.

The seemingly competing objectives of maximizing profit and maximizing extraction are constrained by the spatial characteristics of the orebody and extraction technology. Trade-off studies to evaluate the scale of operation will tend to focus on maximizing the production rate that can be sustained by the orebody's geometry. The use of discounted cash flow analysis allows for the impact of varying price regimes over time and at real discount rates of 10%–20% ensures that the value created beyond 30 years into the future has little impact on the overall value.

The economic life of mine for a mineral resource is thus a key decision variable, which is largely driven by the rate of extraction, with the optimum strategy encompassing the entire resource. The optimal strategy should be focused on exploitation of the entire resource so as to maximize the present value—the challenge is, however, to find the optimal trajectory that achieves the maximum as conditions vary over the life. In other words, maximizing value over time requires the optimization of each subsequent extraction step under an environment with continual changes in market perspectives and operating conditions.

This problem can be compared to climbing a hill where the topography is contingent on three aspects: the geological characteristics of the resource (size, grade, spatial characteristics), the scale of operations (mining, concentrating, smelting and refining rate), and the prevailing market conditions (metal prices, exchange rates and working costs). The topography of the 'value hill' is thus a function of the mineral resource, its depositional environment, exploitation strategy, pre-existing infrastructure and associated constraints. If the peak of the hill represents the potential extractable value of the resource, then maximizing value (optimization) implies taking the shortest (steepest) route to the top. The top can also be reached by longer, less steep routes (different time periods, capital profile, etc.) and as such the gradient of these optimization approaches offers a relative indication of inherent risk associated with options to achieve the peak.

This 'hill of value' concept (Hall, 2003) can be reduced to an X-Y-Z chart representation where the X axis represents the extraction rate (the scale of operations dimension), the Y axis the cut-off grade (the geological characteristic dimension) and the Z axis is value (the financial aspects). The value surface created then shows the overall relationship between the value and the two variables of scale of operation and geological characteristics. A hypothetical 'hill of value' is indicated in Figure 3.

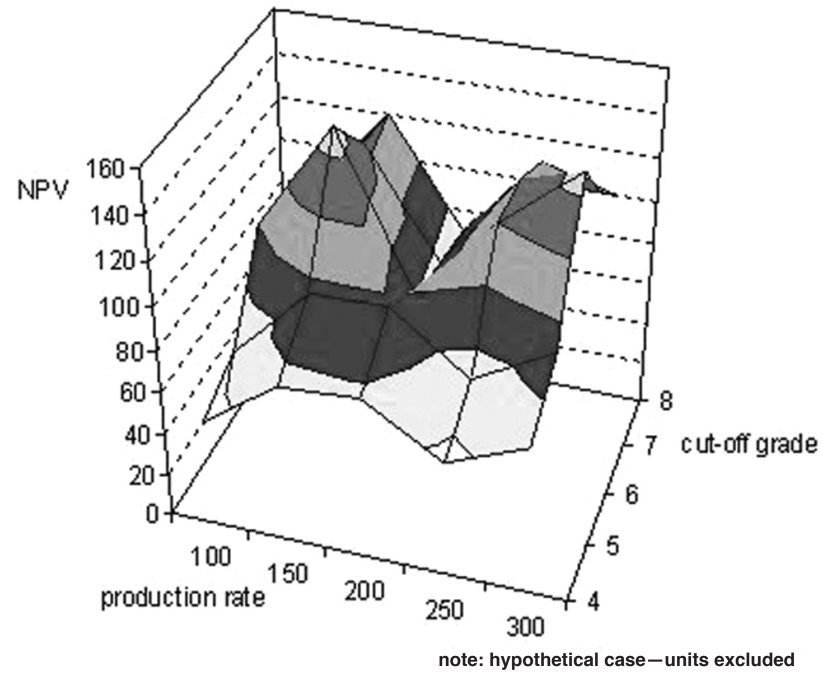

Figure 3—Conceptual diagram—'hill of value' (adapted from Smith and Ballington, 2005)

The value surface indicated in Figure 3, which is specific to the orebody, selected extraction technology and economic assumptions, provides insight from a strategic planning perspective, viz.:

- Similar maximum value can be obtained from extraction rates of 150 and 300 units
- These value peaks coincide with a cut-off grade of 7 units; and
- A production rate of 200 units is to be avoided ,regardless of cut-off grade.

Further insight relates to:

- *Capital efficiency*—optimal utilization of capital infrastructure occurs at 150 units, with a step change in infrastructure investment at 200 units but under-utilization occurs until a production level of 300 units is achieved. The question that must be asked is 'what happens at a rate of 350 units?'
- *Cut-off grade*—a grade of 7 units appears to be optimal for the tonnage/grade characteristic of the mineral resource, at the resource cut associated with the given production rates.
- *Exploitation options*—a fundamental choice must be made on scale of operations. What are the risk elements inherent in the design, funding and implementation of an operation at a scale of 150 or 300 units?

This approach can be applied at differing levels of detail at different stages of the value chain to understand the implications of design choices in areas such as extraction rate, technology selection and market/price forecasts for a given mineral resource.

Scenario evaluation and probabilistic risk analysis

Uncertainty in the external planning parameters such as commodity/metal pricing, exchange rate and relative inflation requires that investment decisions should embrace the concept of scenario evaluation to assess project sensitivity to external parameters. A range of techniques exists to develop scenarios and is not considered in the context of this paper. It is, however, necessary that at least three scenarios be developed for a strategic mine plan, an upside, best estimate and downside in order to understand potential strategic bounds:

- *Upside scenario*—this scenario should embrace a justifiably optimistic perspective on metal pricing and all pertinent economic parameters
- *Downside scenario*—the alternate view to the upside scenario encompasses situations such as price or quantity depression resulting from reduced market demand, oversupply and/or substitution
- *Best estimate*—the best estimate scenario should reflect the most pragmatic view of the project.

The application of simplistic 'plus 10%, minus 10%' scenarios does not adequately address interdependencies between key variables. For example, a sustained 10% increase in metals prices will result in an increased capital escalation.

The use of probabilistic tools, such as @Risk®, can add confidence to the valuation by indicating a possible distribution of results associated with a given set of assumptions per key variable. As such it is an alternative indication of the potential impact of upside and downside scenario parameters on specific modelling elements (assuming that the variable range simulated is the same as the scenarios) without reflecting the sustained impact of a particular scenario on value.

Hyperion Strategic Finance

DCF modelling at Anglo Platinum was originally undertaken using standardized Lotus spreadsheet models which were later converted to Microsoft Excel. However, as scale and complexity of operations increased, the size of necessary suites of valuation models exceeded the limits of the spreadsheet software. Furthermore, the ease with which users are able to edit formulae and modify spreadsheets rendered the standardized models susceptible to corruption and deviation from the standard form with associated inconsistencies in outputs. (Marsh *et al*., 2005)

Following a scan of the market and review of available alternate financial modelling applications, ALCAR software was selected, primarily because of its powerful consolidation ability. Subsequently ALCAR was acquired by Hyperion Solutions Corporation and the software re-branded Hyperion Strategic Finance (HSF).

The HSF application has subsequently been highly customized to meet company requirements through which formatted technical input data (tons milled, head-grade, plant recoveries, opex and capex) are coupled with a set of global planning parameters (R/$, CPIs, metal prices and process division assumptions) to perform a discounted cash flow analysis on a series of calculated annual cash flows. The structure of HSF enables individual component parts of the organization to be modelled independently and then consolidated up in a multi level hierarchy. The base modelling unit is an investment centre (IC), which represents the minimum scale of operation at which an investment decision would be taken. Investment centres by reef type are subsequently consolidated at shaft, mine, complex, company and Group level as required.

HSF components and relationship/structure

The HSF system comprises a suite of template files that are custom tailored for the particular application. These component files are used to create the modular and consolidated simulation of the organization. The component parts and their interrelationship are outlined below and graphically illustrated in Figure 4.

- *Investment Centre* (IC) files/models are the basic building blocks of the HSF analysis and perform DCF valuations and other user defined projections of individual operational units. Investment centre files appear very much like spreadsheets. That is, they are

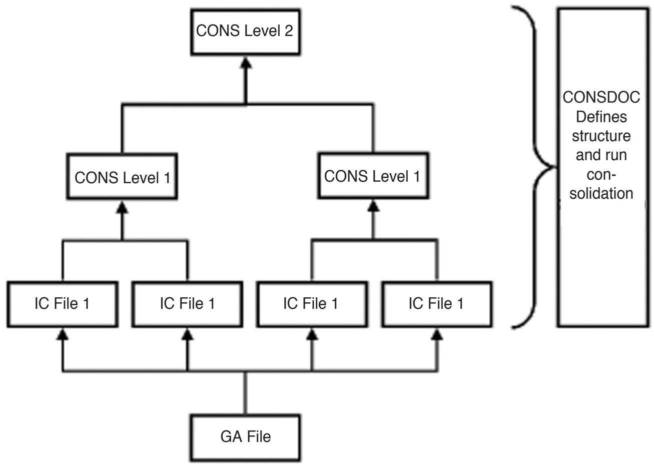

Figure 4. Structural relationship of HSF files

composed of cells arranged in rows and columns. By default the columns represent time periods, which may be defined as years or months.

- *Consolidation* (CONS) files add (or subtract) defined percentages of data from investment centre models according to user definition as specified in the relevant consdoc file. Consolidation files also appear similar to spreadsheets and have the same format as investment centre models with the same accounts and time periods. However, the difference is that in the consolidation file data are added (or subtracted) from the selected investment centre models. The user selects the investment centre files when creating the consolidation structure in the consdoc file. Account data pulled into the consolidation file is predefined in the consolidation file by the software developer according to customer requirements.
- *Consdoc* files enable the user to define a consolidation structure and run it. Different consolidation structures may be defined in separate consdoc files according to requirement. Any number of structures can be created accessing the same investment centre building blocks, but a separate consdoc file is required for each structure.

  The consolidation structure as represented in Figure 4 is created graphically. Entities are added by clicking on an existing entity box and selecting 'add parent', 'add child' or 'add sibling'. The individual investment centre and consolidation files may be accessed directly by clicking on the relevant box to open them. The consolidation is run from the graphic by clicking on the consolidation file box and selecting run. If the top level consolidation is chosen then the entire underlying structure is run. If an intermediate consolidation is run then it consolidates only the underlying structure and not the overlying structure. The consolidation structure may also be created, viewed and run from an alternative tabulated view. The tabulation also presents other information such as the percentage ownership of each entity to be incorporated.
- *Global Assumption* (GA) files are the repository of data common to all models (e.g. metal prices, exchange rates etc) and are linked to other models as defined by the user. Global assumption files are very similar in appearance to investment centre files in terms of format and account content. However, they are only used for collating the defined global assumption data, calculating it and then transferring it to the investment centre and consolidation files.

  The links to the other files may be established from the global assumption file by identifying the target files and then pushing the global assumption data through. A comprehensive list is created in the global assumption file as the target files are selected as illustrated in Figure 4. Clicking on run executes the pushing through of the global assumption data to the target files.

  Alternatively, links may be established from individual investment centre files to the appropriate global assumption file. However, this method does not create a comprehensive list of all the links associated with the particular global assumption file.

  Alternative global assumption scenarios can be created and stored in the global assumption file enabling rapid selection and transfer of different suites of global assumption data to the investment centre and consolidation files.

HSF architecture in Anglo Platinum

The HSF client/server architecture adopted within Anglo Platinum provides a way of centralizing and controlling the models, their versions and respective users within the organization. It allows control of the rights and permissions of the users, who may be allowed restricted access to the models, i.e. may only be allowed to change models for which they are directly responsible. The database environment helps to ensure control so that only 'a single version of the truth' for the models exists thereby preventing the creation of multiple, uncontrolled copies of models.

The architectural structure is illustrated in Figure 5.

Project value tracking

Following the capital investment decision, it is crucial that investment performance is tracked to allow proactive rather than reactive steps to be taken to address any deviation from the expected business case.

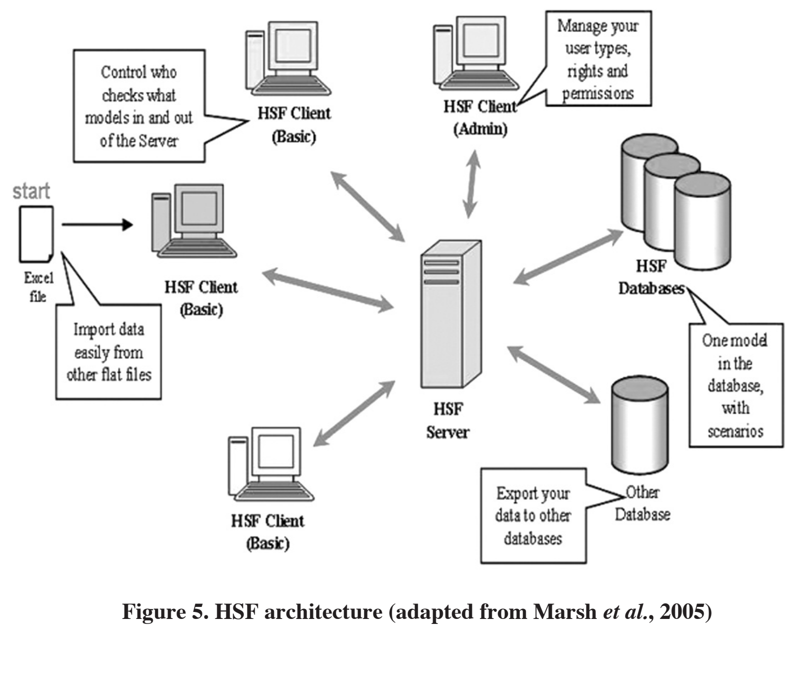

Figure 5. HSF architecture (adapted from Marsh *et al.*, 2005)

The ability to develop a continuous feedback loop of business investment performance relative to original investment criteria (technical, capital and otherwise) is essential if investment decision making and value maximization is to be continuously improved. Value tracking of capital investment decisions is thus critical for Group value optimization and capital prioritization in a large multi-investment mining group such as Anglo Platinum.

Project value tracking (PVT) analysis takes the form of a waterfall chart, which illustrates the relative importance of various external and internal factors that have caused the NPV to change since the original view baseline model. Figure 6 illustrates a typical waterfall chart output that is generated (Pearson-Taylor and Smith, 2006).

The approved investment proposal provides the base or original view (on an incremental stand-alone basis) of how the project is expected to perform. At regular intervals it is therefore possible to compare the present perspective of the project against this original view. Until recently the project value tracking procedure was carried out in Excel based spreadsheets. This was, however, cumbersome, exceptionally time consuming therefore, an automated solution was developed that utilized the HSF modelling package currently applied for valuation purposes.

Conclusion

Capital investment is the life blood of minerals companies. Owing to the depleting nature of the mineral resource asset it is necessary to continuously reinvest to sustain production, let alone expand. Within this context there are often many competing investment 'imperatives' that can divert funding from critical projects.

Alignment of capital investment with strategic intent can be readily achieved through structured planning processes based on optimization (value maximization) of underlying exploitation units and subsequent structured competition for financial resources.

The use of discounted cash flow analysis to forecast value has gained acceptance as a primary methodology of project valuation and investment decision making. From a strategic long-term planning perspective, the absolute value of net present value should not be considered as the final investment decision criteria but rather as a key indicator to be assessed in conjunction with other factors. Further, the relative value of differing scenarios is more informative that the absolute value of each scenario.

The adoption of the HSF system has resulted in ongoing improvement in the control of the strategic long-term planning process at Anglo Platinum. It has enabled the Group's projected operational plans to be measured on a number of levels and by a wide range of parameters.

Continued sophistication of long-term planning processes creates an increased demand on supporting processes and analytical techniques. The refinement of the pre-existing Excel based techniques of project value tracking into an automated HSF-based approach consistent with LTP investment centre data has ensured alignment with developing processes.

Overall the quality of decision making and the associated matching of resources to projects to ensure effective implementation has significantly improved as a result of improved data, interpretation, evaluation and execution processes associated with the tools and techniques applied at Anglo Platinum.

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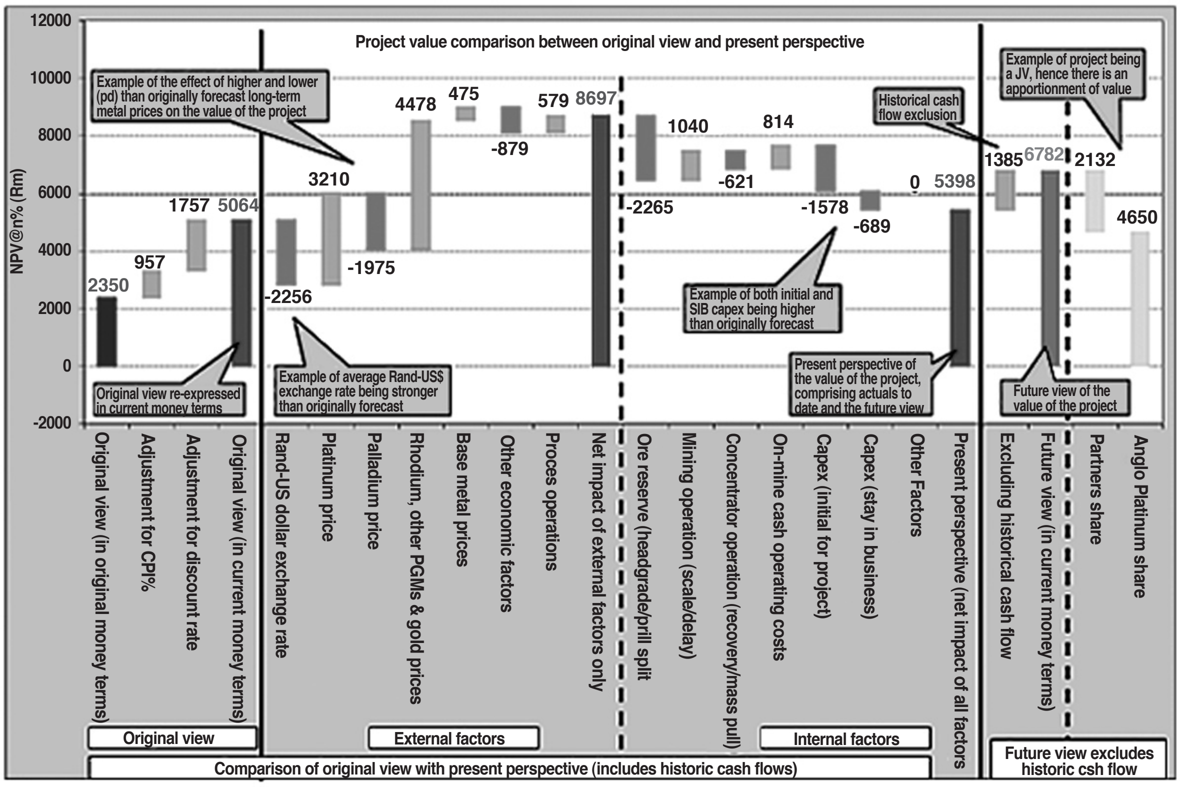

Figure 6. Typical waterfall chart output (adapted from Pearson-Taylor and Smith, 2006)

References

ANDERSEN, D.C., PEARSON-TAYLOR, J., and SMITH, G.L. The strategic long term planning process at Anglo Platinum. *First International Seminar on Strategic versus Tactical Approaches in Mining*, South African Institute of Mining and Metallurgy, Symposium Series S40, Johannesburg, South Africa, September 2005.

BALLINGTON, I.R. and SMITH, G.L. Discounted Cash Flow Analysis—Methodology, Inputs and Sensitivity, SAIMM Colloquium: The Valuation of Mineral Projects and Properties: an African Perspective, South African Institute of Mining and Metallurgy Johannesburg, South Africa, 2002.

BALLINGTON, I.R., SMITH, G.L., LANE, G.R., and HUDSON, J. The systemic interdependency closure decisions at shaft level. *First International Seminar on Strategic versus Tactical Approaches in Mining*, South African Institute of Mining and Metallurgy, Symposium Series S40, Johannesburg, South Africa, September 2005.

HALL, B.E. How mining companies improve share price by destroying shareholder value, *Proceedings CIM Mining Conference and Exhibition*, Montreal, 2003.

MARSH, A.M., NAIDOO, D., and SMITH, G.L. The application of Hyperion Strategic Finance in strategic long term planning at Anglo Platinum. *First International Seminar on Strategic versus Tactical Approaches in Mining*, South African Institute of Mining and Metallurgy, Symposium Series S40, Johannesburg, South Africa, September 2005.

PEARSON-TAYLOR, J. and SMITH, G.L. The concept of project value tracking and its application in strategic mine planning at Anglo Platinum. *Proceedings of the Second International Seminar on Strategic versus Tactical Approaches in Mining*, Australian Centre for Geomechanics, Perth, Australia, 8–10 March 2006.

SMITH, G.L. and BALLINGTON, I.R. The application of discounted cash flow modelling in strategic mine planning. *First International Seminar on Strategic versus Tactical Approaches in Mining*, South African Institute of Mining and Metallurgy, Symposium Series S40, Johannesburg, South Africa, September 2005.

SMITH, G.L. and PEARSON-TAYLOR, J. Alignment of capital and strategic intent – challenges and responses at Anglo Platinum. *Proceedings of the Second International Seminar on Strategic versus Tactical Approaches in Mining*, Australian Centre for Geomechanics, Perth, Australia, 8–10 March 2006.