

Journal Comment

Mining Business Optimization 2015

The SAIMM's Technical Programme Committee (TPC) identified the need for a conference on the topic of mining business optimization based on repeated references and discussions in the ranks of mining company representatives. In March 2015 a two-day conference was subsequently held at the premises of Mintek.

Keynote speakers Alan King of Anglo American and Jeremy Gardiner of Investec addressed the gathering on reducing variability in mining business processes and a wider world view highlighting a positive perspective on South Africa. Alan also ran a masterclass that made process improvement theory extremely practical, with some fun along the way. What else, with geologists, miners, engineers, and metallurgists all in the same room!

Depending on who you speak to, the word 'optimization' is used in many different ways. The common theme, though, is a desire to seek improvements impacting the bottom line of the mining business. For the purposes of the conference, a definition of 'Pick the Best Option in the Time Available' was adopted to embrace not only different approaches to optimization but also the implications of typical time constraints for decision-making.

The delegates, although relatively few in number, put the opportunity to good advantage, sharing practical experiences and highlighting many tools and methodologies along the way.

The presenters were well prepared with a good mix of theory and practice eliciting questions, answers, and lively conversations in the breaks between sessions. They came from the ranks of mining technical services professionals, industry consultants, and academia, each contributing freely of their experiences on topics that are not at all as well understood as we might like.

The two days provided time to cover the analytical hierarchy from top to bottom, including what we are doing (descriptive analytics), through what we could be doing (predictive) to what we should be doing (prescriptive), as well as topics across the core mining value chain and many of its support processes.

Various presentations, highlighted in this copy of the *Journal*, focused on specific commodities or mining methods, and others more broadly on issues such as a project prefeasibility study and examples of improvement methodologies from the manufacturing industry.

In the gold mining context a paper by Clinton Birch (School of Mining Engineering, University of the Witwatersrand) addressed the impact of discount rates on cut-off grades for narrow tabular gold deposits. His relatively simple financial model linking ore flow, block listing, and cash flow allows cut-off grade to be optimized as another planning indicator rather than its conventional

use as a hard determinant of mineable reserves. Lumkwna Xingwana (Sibanye Gold) reported on a survey-based investigation of ore loss and dilution for mine to mill integration in deep gold mines. While the purpose of the study was to understand impacts on mine call factor and to improve the quality of ore mined and fed to the mill, it highlighted the extreme variability associated with estimating mine process inventory.

A platinum focus was provided by Pascale J. Petit (independent consultant) tackling business optimization for both mining projects and operations and placing sustainability in the spotlight. Her methodology combines strategic alignment and integration of optimized short- and long-term targets.

The open pit world was represented by M.F. Breed and D. van Heerden (Minxcon), who illustrated the need to ensure strategic business alignment once the standard, theoretical pit optimization process is completed. NPV alone is not always the most appropriate KPI.

Steve Burks (MAC Consulting) tackled the broader mining value chain. His approach to simultaneous mining and mineral processing optimization and sustainability evaluation aims to significantly increasing mining business value by enabling better long-term planning decisions.

To illustrate how miners can learn from other industries, J.O. Claassen (Department of Geology, University of the Free State) tapped into several manufacturing management and improvement methodologies that can be of benefit to mining. He made the point that successful mining business management and improvement depends on management's ability to effectively deal with mining industry-specific requirements and the integration of the geology-mining-plant system.

By the end of the two days it was obvious there are many tools and techniques immediately applicable to improving value in the mining business, as well as a small but enthusiastic number of practitioners well versed in their application. I trust the readers of this *Journal* will gain useful insights and find practical opportunities to apply the knowledge.

M. Woodhall
Organizing Committee Chairman