

**Turning data into dollars  
28 August 2009**

This week I intend to discuss how the vast amounts of data which are generated on mining equipment can be turned into productivity and profitability. This is what I call “bottom line” services.

There is a wealth of valuable mining data being produced around the world every day, however, mines are failing to benefit from it as they don't have the ability to capture and apply it meaningfully. Through poor management of available data and the loss of personnel, the continuity of information acquired and knowledge applied to run mines efficiently is being broken. If this not remedied, it will prove very costly in the long term.

Data by itself is just a mass of numbers - it needs to be analysed and assessed to extract value. However, mines must be wary of subjective analysis which is done for the benefit of another party rather than the mine itself. In addition, all too often the mining industry funds work by research groups and consultants which focus on the process and how smart the process and people are. For knowledge to be valuable and to facilitate the innovation process it must be value-based, ie. it must provide bottom-line / profitability improvements for the mines. The key to this is the person pulling the levers or turning the steering wheel. This person has the ultimate control over what output is achieved. Therefore the mine must engage the operator / driver in the optimisation process. To do this they must have an intimate understanding of the information being provided through reporting of performance and know what to do with the knowledge.

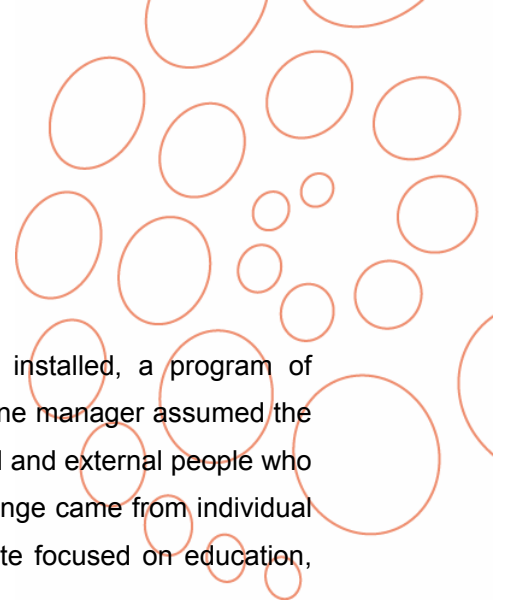
The best way to explain this further is through a case study. While most mining equipment maintain loggers generating data (and if your's don't then they should) the loggers on a dragline produce the most comprehensive data. A dragline with production and maintenance loggers will have over 2,000,000,000 signals processed into nearly 20,000,000 pieces of data, stored in databases every year for post processing. Is it any wonder that mines find themselves swamped by data?

The dragline is real and the results are real. Most importantly, the lessons to be learnt can be applied to any operation and any piece of equipment.

The dragline mentioned above historically operated at a production

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rate better than average. When the maintenance logger was installed, a program of improving productivity and reducing damage was initiated. The mine manager assumed the role of “change agent” and sought the support of a range of internal and external people who he perceived could help him. Not unexpectedly, resistance to change came from individual and organisational sources. In overcoming the resistance, the site focused on education, communication, participation, facilitation, support, and negotiation.

A key aspect part of the program was to delve into the masses of data to provide specific and targeted reports to a range of people across the site. Reports included benchmarking, monthly production reports, operator comparisons, individual operator reports, and bucket reports, all of which included comprehensive productivity and maintenance information. They included tables of data, line graphs, bar graphs, pie charts, and anything else the mine requested to help them understand what they were doing which impacted productivity or maintenance. Of critical importance was the fact that these reports were followed up with visits from dragline experts and trainers who helped all levels on the mine site interpret the reports and develop plans for change. In addition, all operators and supervisors attended off site courses which focused on team and individual understanding of the job they were employed to do.

The data and the analysis of it was not the source of the improvements. The program put in place tools and tactics which could be drawn upon to improve equipment productivity. The real impact was the organisational culture which was created. The dragline was changed into a “learning group” with the following characteristics;

- A shared vision;
- Old ideas were discarded;
- The dragline operation was seen as a system of interrelationships;
- People actually communicated with each other; and
- Personal interest was less important than organisation interest.

Competitive advantage for a mine or organisation comes from operating at a higher productivity and lower cost than others by doing a whole range of actions better than your competition. The use of data was not the source of competitive advantage but rather an enhancing feature which put in place

the tools and tactics for achieving a more efficient process.

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