



## **Improving equipment performance – knowledge & innovation** **24 August 2009**

The two steps in improving equipment performance are to gain knowledge and to do something with the knowledge (innovation).

A simple knowledge - innovation process is shown in the figure. Step 1 is to generate knowledge. There are a number of generators of knowledge.

- R&D which needs policy to support R&D and money to do the R&D. The money attracts smart people to do the R&D. A really good example of this has been the ACARP program in the coal industry. \$10M+ of funding is available per year and some of the smartest researchers have been attracted to this money.
- Experience from time on the piece of equipment. The knowledge is gained from the interactions between the people and their environment. These interactions are a key component of andragogy, which is simply a fancy way of describing adult learning.
- Training which is defined in terms of the content and the delivery / instruction generates knowledge for the trainee.
- Information which is generated from data becomes knowledge when it is meaningful to the recipient.

Experience happens, data is collected and benchmarks done, training is provided and research is done by various organisations, however the transition to knowledge is not always done well. Many have said, "If you don't measure it you can't improve it", but it is more than this. If you don't actively acquire it, absorb it and apply it, you can't improve it.

Many mines are aware of the value of knowledge and its role in improving what is being done (innovation). Internal knowledge resides in the people and the captured data. External sources may include trainers, researchers, consultants, market intelligence, etc. As a topical example, the community attitude towards climate change is creating global demand for expert services.

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The effective generation and use of knowledge is being stifled at the majority of Australian mines. Good management doesn't just put red lines through a whole heap of budget items. Good management is about cost optimisation in the short, medium and long term; not necessarily short-term cost minimisation. Cost optimisation always allows a budget cost (usually relatively small) to become smarter and practice real continuous improvement. If an organisation wants to stay operating during difficult times they really need to spend some money to save more.

The expansion of knowledge and the use of knowledge has attracted the attention of many key mine people, however, the further one looks up through the corporate ranks the less appreciation for the value of knowledge is apparent. Many people in decision-making positions, struggle with grasping something which is not tangible.

Most Australian mines fail to take the steps to innovation. Getting a benchmark or a consultant's report or a mine plan demonstrates that the manager is doing something. But really, if something isn't done with it, all he/she has done is waste the company's money in an attempt to make themselves look good and tick their career boxes. Without taking the step to innovation / change, nothing of value is achieved for the mine. A culture has developed whereby not taking risks is rewarded. "If you want to get ahead don't stuff up". Add to this the personal issues many Australians have to being wrong and you can see why innovation is so difficult for some mines.

The easiest way to use knowledge and to add value is through using data to evaluate and understand what is currently happening and to change based on the knowledge of what others around the world are doing. It is not about the creation of a simple one-page report from the monitor because chances are that it has been written by an IT person with limited knowledge of what is meaningful. It is about the active creation of meaningful reports and a program of helping the recipients understand and plan to be better.

For managers or engineers, this is not about stuffing-up nor sticking your head out too far, which certainly can happen in the equipment selection phase; this is about good management practices of the equipment when it is already operating and it is a shame more mines don't demonstrate these good management practices.

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