Extracting sustainable productivity improvements
Increasing costs, threats of international substitutes, lack of available capital - all of these current market pressures are requiring key players in the mining industry to refocus efforts to extract additional value from their existing assets. The big question is “How?” Deloitte has demonstrated that by applying its continuous improvement framework it can, without capital expenditure, deliver a step change in productivity in excess of 30 per cent while setting up a platform for sustainable long term improvement. Deloitte is also supporting the industry to get the most out of its technology budget by applying its expertise in operations, information management and digital design.

Figure 1: Continuous Improvement framework

For sustainable continuous improvement to be achieved, all three elements of the CI framework need to be executed in parallel. This will then embed productivity improvements by addressing the right initiatives that are tied to the economics of the business including: management operating systems across core business processes, IT/OT, data and appropriate mix of leading and lagging KPIs. This approach has the added benefit of de-cluttering business operations and increasing transparency throughout the business.

Deloitte’s deep industry knowledge combined with its breadth of service has enabled it to deliver projects across the continuous improvement framework including:

Business improvement:
- Automated value driver trees to enable live monitoring and optimisation of the value chain
- Completing cost benefit analysis of new mining technologies including underground cutting equipment.

Management operating systems:
- Embedding robust management disciplines including root cause analysis, variance control and accountability management
- Developing automated planning, scheduling and reporting tools and procedures.

Building capability:
- Delivering sustainable business tools that provide decision making support to managers
- Coaching front line managers and leaders to improve management effectiveness.
1. Business Improvement

Deloitte approaches BI initiatives on a case by case basis. Applying its in depth industry knowledge paired with broad capability Deloitte is able to develop custom solutions at all points in the BI process. Firstly, Deloitte uses its Value Driver methodology to quantify the benefits of opportunities against key indicators (eg cost per tonne or throughput). Initiatives are then prioritised and their implementation managed through a stringent gated system building on a quantum of program management experience.

Deloitte has demonstrated that this approach is successful in delivering sustainable benefits. One example included the development of a scale model to evaluate the cost and benefit of implementing new underground cutting technology.

Deloitte’s client faced a challenge in the successful implementation of a new piece of equipment - the equipment had been purchased, however an implementation plan to was yet to be developed. If successful, the implementation could deliver continuous haulage and a monorail ventilation system. Using its deep industry knowledge Deloitte constructed a scale model of the gate road and mapped each process required for the equipment to be implemented and production levels maintained.

The project identified over twenty engineering changes that would be required for the equipment to work effectively. This project was critical in supporting the business to avoid an unsuccessful implementation which would have cost hundreds of hours of lost time and potentially shut down the longwall.
2. Management operating systems

Regardless of the tools and technology, sustained productivity gains must be coupled by sustainable behavioural change. Deloitte deploys front line coaches to design and implement effective management operating systems that drive the right behaviour and sustainable improvements in safety, operating times and rate. Based on the foundations of forecast, plan, execute, review and report, an effective management operating system forms a transparent closed circuit of actions that drives performance through accountability, active management and competitive spirit.

Once detailed planning is implemented it is the identification and management of variances between planned and actual results that has the greatest impact on sustaining behavioural change. Deloitte works with Supervisors, Superintendents and Managers, to conduct root cause analysis of variances and set appropriate actions to minimize the risk that these variances will occur again. In a paper environment managers can only assess variances at the end of a shift, which often can be too late to address the cause of the issue.

Technology is now available to provide managers with real time information to support decision making and improve productivity early in the project lifecycle/shift/etc - resulting in upfront savings and sustainable change. Deloitte has developed Ultimine, a SQL server based database that that enables mine management to complete the entire planning, execution and reporting process in one application. A supervisor can instantly report on panel conditions, hourly production, task completion, hourly delays and work completed during a delay. Waiting until the end of a shift is a thing of the past.

A simple touch screen interface allows front line supervisors to make better decisions at the coal face.

Real-time data provides mine Management with live updates, production progress reports and cascading decision making.
3. Capability Building

The transfer of knowledge and improving decision capability of managers has become a hallmark of Deloitte success. It has been achieved by applying its dedicated human capital team with its skills in operations, information management and digital.

Deloitte deploys front line operational coaches to work with managers at all levels of the business. Working together to improve management disciplines including effective meetings, delegation and time and performance management have led to an uplift in the capability on site and a step change in the organisational culture. Coaching is delivered on the job and in formal group training sessions. The greatest improvement is realised when mine employees are embedded into the project team, and once upskilled become key change agents. Once the project is complete these individual often taken leadership roles within the business.

Deloitte is also supporting managers by designing user friendly, automated reporting systems and dashboards that access information from a range of sources, in a timely manner and enable businesses to react faster and reduce downtime. These tools remain with the business after the project has finished. Examples include:

- Automated dashboards for reporting end-to-end metrics across the mining operations, built on leading business intelligence and data warehouse technologies. Dashboards provide managers with a single source of accurate data displayed in a timely, intuitive and visual manner.

- Visual performance tracking of each component in the value chain in real time. The user can see the impact underperformance has on the entire value chain, identify problems quickly and allocate resources with confidence and in a timely manner.
To understand how Deloitte has supported other organisations to improve their productivity we suggest you book a time to tour The Core. The Core is an interactive space in which Deloitte demonstrates its extensive experience in supporting step change productivity improvements across mining operations. The Core is a interactive room which is used to communicate approaches, methodologies and outcomes from past projects. Visual displays and the presence of a range of subject matter experts provide you with an opportunity to understand improvement initiatives, and what is required to deliver sustainable productivity improvements through real examples.

The Core enables managers to identify approaches that will suit their environment. Alternatively participants can work through a particular issue and custom design an approach that will meet the needs of their organisation.

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