

**AN OPERATIONAL MANAGEMENT MODEL FOR A COAL
MINING PRODUCTION UNIT**

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SUMMARY

Title:	An operational management model for a coal mining production unit.
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It is expected from highly technical first line supervisors to manage an underground coal mining production unit and to reach stretched targets when they have very little operational management skills. A myriad of operational management philosophies are available that were not developed for a mining environment as such. These philosophies are focused on company level implementation and not on production unit level. To be used in the mining production unit is therefore necessary to adapt these philosophies. The first line supervisor needs an operational management business model that will assist and guide him/her in managing the production unit in order that production, cost and quality targets can be achieved. The first line supervisor must also be able to adapt quickly to changing requirements. The answer lies in the application of current world-class operational management philosophies to the management of the coal mining production unit. In the thesis an operational management model to assist the first line supervisor is derived from current operational management philosophies.

The research approach that was followed is:

- Current world-class operational management philosophies were investigated.
- The management philosophies to be analysed in detail were identified as Total Quality Management, Just-in-Time and Theory of Constraints.
- From these philosophies the key elements to be used in the development of an operational management model for an underground mining production unit were determined.
- These key elements were used as building blocks to develop the mining model.
- The developed model was illustrated utilising real data from a production section.

The developed mining model provides a framework for managing the production unit on a day-to day basis, but with a long-term vision. To achieve this a strategic and operational

level exist in the model, with different focus areas. The purpose of the strategic level is to focus the unit on the requirements of the customer, and to plan for a longer time horizon. The operational level assists the first line supervisor in managing the day-to-day operations of the production unit. The model also provides tools to continuously monitor and improve the performance of the unit. For any new initiative to be successful proper planning, training and an implementation plan are necessary. The planning phase includes change management and creating awareness of the mining model. Training consists of various training modules, presented over the implementation period. Each production unit that is introduced to the mining model follows a predetermined implementation plan with constant feedback on the progress made. The support from top management is actively demonstrated during the implementation period. A phased in rollout of the mining model is prescribed, i.e. not all production units will be introduced to the model at once.

The research highlighted the similarities that exist between the three operational management philosophies, leading to a cohesive set of building blocks for the mining model. Where differences between the three philosophies existed the most appropriate approach was selected, based on the evaluation of the elements. This highlights the impact that the evaluation process has on the design of the mining model, and forces one to scrutinise the process for ambiguity and partiality. This is one area where the research can be refined. It is suggested that a cross-functional team is used in the evaluation and design process.

To conclude, the mining model developed and illustrated provides the coal mining company with a tool that will assist a highly skilled technical first line supervisor with operational management practices based on world class operational management philosophies.

Key words: Just-in-Time; Theory of Constraints; Total Quality management; mining; operational; management; model; strategic; continuous; improvement

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