

## **Extended Coal Supply Chain: *Pit-to-Customer Simulation***

By any yard-stick the coal industry is a major force that underpins social and economic development in regional Australia. Black coal is Australia's largest export, worth more than \$A45 billion last year, employing 130,000 people directly and indirectly.

Although the mining and transportation of coal from pit to customer is one of Australia's most important supply chains it suffers from a distinct lack of coordination. In most mining, rail, port, transportation and customer organisations the management structure responsible for supply chain activity is organised in silos. In other words, information moves in a linear, sequential fashion because (1) people are narrowly focused on their own domain, and (2) companies lack timely, transparent access to data to optimize performance. As a consequence, companies in the extended supply chain struggle to connect long-term strategy and shorter term daily, weekly, and monthly activities. :

Experience in other industries indicates that the value of a simulation based approach to supply chain management is greatest when a high level of complexity exists and a few key partners are involved across the supply chain. The mining industry provides a singularly good example of an industry that can benefit from simulation modelling across the extended supply chain. This work would lead to (1) improved data visibility between external and internal supply chain stakeholders (including customers, handlers and logistics providers), (2) establishment of common standards and metrics for information exchange and (3) improved business analytics that can be used to better identify optimal decisions and meet future government requirements such as the carbon trading scheme.

The current coordination problems facing the industry will not be solved with more technology. The key challenge is to develop an effective way to introduce new ways of thinking about supply chain processes and performance.

### **Supervisors**

#### Tim Coltman

Associate Professor  
Faculty of Informatics  
Director, Centre for  
Business Service Science  
Associate Director,  
Institute for Innovation in  
Business and Social  
Research  
Email:  
tcoltman@uow.edu.au

#### Stephen Van Duin

Senior Research Fellow  
Faculty of Engineering  
Mechanical Materials &  
Mechatronics  
Email:  
stephen\_van\_duin@uow.edu.au

#### Peter Robertson

Honorary Fellow  
Sydney Business School  
Member, Centre for  
Business Service Science  
Email:  
ezyflow@bigpond.com