

Title

Multiplying the Benefits of Information-based Technology through Creativity

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Abstract

Mines have invested millions in cutting-edge data-driven technology for collecting ever more data, and further investments in centralized control rooms to display that data in exciting new ways. However, the full potential of such technology remains under-utilized. Vendors have invested resources into creating, deploying, and supporting data driven technology. These Original Equipment Manufacturers (OEMs) also offer additional consulting services to help improve the overall efficiencies of their products. However, a holistic view of most operations would reveal that several products from competing OEMs, for example, high precision products monitoring dozers and drills from one large OEM, a fleet management system from another. This result in a conflict of commitment from the previously mentioned after-sale consulting services offered from the OEMs if directed toward large integrated projects. The result is that the mines may not enjoy the full benefits from these very good investments in Technology.

That is why it is important an alternative model, it actually has been building from the consumer electronics market. Very large software companies, such as Microsoft, large consumer electronics companies such as Apple, and data providers such as Google, are increasingly blurring their business models to encompass data services, hardware, and software. However, the emergence of smart phones and tablets has greatly benefited the consumer by becoming a creative platform for inventive new means of delivering information and applications by innovative application or 'App' developers. By providing access to the sensors and on-board capabilities of the electronics as well as data, App developers have been able to create new ways of interaction between people, their data, social networks and work. The core players in mining: the OEMs and mining companies, would greatly benefit if access to hardware and data is shared more freely with independent creative 'App' developers. This has begun through a unique relationship between industry, consulting, and applied university research at the Mining Information Research Group at the University of Arizona in the United States, the team has helped pioneer a unique value-added approach. The process begins by providing a vendor-independent data warehouse and real-time holistic system that can integrate historical and real-time data. The usual basic reports, control room visualizations and ad-hoc analysis capabilities are delivered but once the industry partner begins to use these integrated data sets and hardware infrastructure, they inevitably identify new sources to integrate, or new uses of such technology for display. Simultaneously, an applied research partner at a University can also suggest new out-of-the-box applications of the integrated data and hardware infrastructure or begin to finally provide long-promised capabilities in a sustainable manner, such as Mine-to-Mill or condition based maintenance. This tracks closely with the consumer electronics industry analogy, where easy to integrate data and hardware is opened to independent creative thinkers who have the ability to deliver creative applications quickly to the consumer.

In summary, this unique relationship has greatly benefited the industry, both OEMs and mines that have had serious deficits of engineers and technicians necessary to support data driven technologies. It has also resulted in several unique research efforts that were able to deliver unique innovative products to the market and provide after-sale support. Three examples of these efforts are reviewed as illustrations of such innovation and rapid commercialization. For example, a holistic simulator tool that can read common OEM databases and automatically generates a holistic complex empirical simulation model within seconds, allowing mines to quickly deploy a simulator and apply what-if scenarios. A second example is the development of mobile applications and centralized control room interfaces as part of a holistic reengineering of frontline management using many different OEM systems as data feeds. A third is integrating existing fleet management systems with labor accounting systems to create a human 'fleet' management system where dismantled personnel can be 'dispatched' and managed creating a more effective real-time labor management system. Taking about future perspectives, and after a decade of heavy investment in IT, mining companies may be asking, what next? A possible answer is to embrace an innovative model

of cooperation between independent creative groups that can deliver complex holistic vendor independent systems thereby squeezing ever-more benefit from past investment in technology.