In an age of available sensing technology and low cost computers and electronics, the forging industry should be poised to more fully embrace integrated computational materials engineering (ICME) and enter the "Big Data" revolution. Increased application of sensors for load and temperature measurement throughout the forging process would significantly enhance process monitoring and visibility to sources of variability in the final forged component. This collected data could also be used to enhance ICME for predicting forging response and final component properties and performance. Increased process knowledge and prediction are critical to addressing the needs of the mining and construction equipment industries. These needs include (1) understanding material work in forgings produced from as-cast or low reduction steel, (2) increased process control and thermal management of cooling parts to enable application of new alloys for heat treat reduction, and (3) a greater understanding of how the entire steel making and forging history may affect downstream distortion during heat treat and machining. Ultimately, the Mining and Construction industry will look to the forgers as partners to aid in the acceleration of component development and validation of high quality, globally competitive forgings.