

<b>PROJECT TITLE - <i>Data Mining for Value</i> - A Demonstration of Data Analytics to Optimize the Mining Value Chain</b>					
<b>PROJECT OVERVIEW</b>					
Advanced data analytics tools have the potential to provide measureable and sustained value to mining and mineral processing operations. The project aims at demonstrating the potential benefits of these technologies by performing analysis on data collected from the mine face to final products and tailings.					
<b>PROJECT DESCRIPTION</b>					
Most operations collect vast amounts of data in different historians (Pi, deltaV, other) however the conversion of data to information for decision making varies across the industry. Data such as exploration databases, mineralogy of ore and waste, mobile and fixed plant equipment data, process data such as tonnage rate, power, speed, pressure, flow, temperature, metal grade, recovery are examples to be included in the dataset to be studied. This project seeks to benchmark data collected from open pit and U/G mines, mills and concentrators over a range of commodities and evaluates various data analytic tools and algorithms in an effort to convert complex data sets to relevant information for decision making and optimisation of operations KPIs. This initiative is synergistic with other efforts to use the power of information to improve our mineral processing operations.					
<b>PROJECT STATUS</b>			<b>PARTICIPANTS</b>		
Some effort to use data analytics for haul truck analysis has started with CMIC but little industry experience on the integration of mining and milling operations data exists. The project will use some of the existing experiences to benchmark and evaluate the potential but will be ground breaking in some areas.			CMIC, Newmont, Glencore-XPS, Schneider, Queen's University, COREM, Univ. of Alberta		
<b>METHODOLOGY</b>					
	<i>Project Tasks</i>	<i>Timing (Q/Y)</i>	<i>Budget (\$\$)</i>	<i>Resources Required</i>	<i>Outputs</i>
1	Phase 1: Benchmarking				
1.1	Project Kick Off	Q1 2019	~	CMIC/Partners	Communicate scope and seek input and participation
1.2	Benchmark equipment, process and mineralogical data collection within the mining industry. Perform process mapping and gap analysis	Q2 2019	\$10,000	Coordinated request for information?use existing databases, GRG, CEEC	Data sets including types, fields, frequency of collection; source of data.
1.3	Access data set(s) from selected sites (OP and UG)	Q3 2019	\$5,000	CMIC coordination of in-person workshop (+ telecon)	down-select one OP and one UG data set
1.4	Evaluate data analytics algorithms with example data sets (CMIC and Queens University)	Q4 2019	\$10,000	CMIC coordination	Report out on "what have we learned"
1.5	Communicate results and best practices/ Assess GO/NO GO	Q4 2019	~		Communicate results to participating sites
2	Phase 2: Select commercial analytics package				
2.1	Contains required algorithm(s)	Q4 2019		Project Team	
	End user support				
	Ability to run analytics with real-time operating data				
	Cost (per seat, licensing, training)		\$10,000		Select algorithm, software
3	Phase 3:Evaluate the benefits of the algorithms and software on test sites				
3.1	Modelling and Analytics	Q2 2020	\$20,000	Project Team	Forecast value and business case
3.2	Test at operations sites	Q4 2020	\$10,000	Sites/Project Team	Actual value and business case
3.2	Communicate results to participants and define next steps	Q3 2020		All sites	
3.3	Task title				
<b>ENVIRONMENTAL IMPACTS</b>			<b>DOWNSTREAM IMPACTS</b>		
reduction in reagent usage and waste, water treatment/usage, energy reduction			Higher production rates, higher recoveries, higher conc grade, power costs		
<b>UPTAKE POTENTIAL AND SCALABILITY</b>			<b>THE INNOVATION CASE</b>		
Risk is uptake potential, on site resources to support and re-calibrate models and predictions			Uptapped information, key to ore body understanding and implications on downstream processes and integrated with next generation of mining/processing technologies (ie: cutting, sorting, comminution)		
<b>ECONOMIC AND/OR SOCIAL IMPACTS</b>			<b>HUMAN IMPACTS</b>		
Lower costs, higher margins, more sustainability. Higher end employment opportunities for 'data miners'. Improves reputation of the industry.			Lower risk to exposure and safer work environment		