



UNDISCOVERED INSIGHTS: WHY DOES MINING NEED AN OPEN DATA PLATFORM?

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Veery birds are small, elusive birds that nest in the forests in northern USA. Every year they take a very long trip to spend their winters in the southern jungles of the Amazon in Brazil. Strangely, some years they migrate early, cutting short their nesting season. Trying to understand the reason for this altered behavior, scientists decided to compare the length of their nesting season with the severity of the Atlantic hurricane season. The scientists discovered that these two are highly correlated. In fact, the Veery birds' short nesting season is a more accurate harbinger of the severity of the hurricane season than meteorologists' predictions. This posed the question, what other not-so-obvious data points can be used to predict the severity of a hurricane season?

While this is fascinating information by itself, you might be wondering what veery birds have to do with data platforms.

Well, a mining enterprise is a vast ecosystem with multiple interconnected and moving parts. The interconnections between the mine enterprise's various elements are not always apparent or visible. A lot of these connections are commonly made using first principles deductions or a priori results.

In other words, most of the data is collected to answer a question that you already have. Likely, the problem originated with a specific visible result – that in itself could bias the collection of the data towards the answers for which you are looking.

Moreover, the collection, cleaning, and reformatting of the data, along with the subsequent analysis, both statistical and predictive, is all a massive effort. Thus, senior management usually gives permissions to work only on problems with a definitive positive result or already understood valuable outcome. How likely is it that a data scientist in a mine would be permitted to find unorthodox connections like the length of the veery birds' nesting season and severity of hurricane seasons? A practical mind wouldn't necessarily consider those connections and would find it very difficult to agree to spend a significant amount of time and resources on gaining insights into enigmatic data.

How can a vendor-neutral, data format-indiscriminate platform help here? Such a unique data platform can collect data from different areas of the mine, be it mine planning, mine operations, hydrometallurgy, processing plants, shipping schedules, stockpile management, geomechanics, environmental, etc. It keeps not only the current data but also the historical versions. The data can come in as structured data (columnar data, databases), semi-structured data (json, xml data feeds of instruments, IoT devices, plants), or even unstructured data (texts such as accident reports, safety concerns, etc.). Public forums such as weather data, social demographic data, etc. are also sources of data access.

Having all the data cleaned up, queryable, and able to be joined and correlated at the user's fingertips would make it easier for a data analyst to look beyond the usual correlations and connections and into other various forms of data. Could the changing recoveries in the leach pile predict the weakening of the tailings dam? We don't know, but the point is that the difficulty for the mines to find these connections is significantly reduced as the data platform makes their whole data accessible, cleaned, and curated. The cost of a data science project reduces significantly. Future data scientists can run correlations on thousands of variables in the mine to let the machine learning algorithms find correlations that the human mind hasn't fathomed. The exercise becomes even more worthwhile if mining companies were willing to share some of their newly discovered insights with each

other while keeping the underlying data private. The mining industry together could reach much safer, environmentally-sustainable, and more profitable standards much sooner.

Eclipse Mining Technologies is at the forefront of such a grand endeavor. Our data platform, SourceOne, is expanding to connect all the data, context, and its history across a mining enterprise, generating connections and insights capable of improving the mine's productivity, profitability, safety, and economic profile. Let SourceOne help you find your mine's veery bird connection for a smarter, safer, and more productive mine.

THROUGH PRODUCTS THAT REVOLUTIONIZE DATA CONNECTIVITY AND DATA MANAGEMENT, THEIR DECADES OF EXPERIENCE IN THE INDUSTRY AND FREEDOM FROM RESTRICTIVE LEGACY TECHNOLOGY, THE ECLIPSE TEAM IS UNIQUELY EQUIPPED TO BRING A MUCH-DEMANDED SEA OF CHANGE TO THE INDUSTRY.

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A NEW STANDARD FOR MINING TECHNOLOGY.