



AUTONOMOUS MINES FAST APPROACHING

PETER BRYANT

Managing Partner of Clareo

Q: What gap does Clareo fill in the market?

A: We are a strategic consultancy that focuses on accelerating innovation and transformation in companies. In the mining industry, we noticed that companies were caught in a vortex of incrementalism and a fast-follower paradigm, so there was minimal adoption of new technologies. Mining tends to resist transformation more than other industries when it comes to technology and sustainability.

Our approach is based around principles that engage companies in an alternative manner, particularly the mining industry. Mine closures strongly impact surrounding communities. We strive to teach stakeholders how to be more proactive partners in places such as Mexico, Latin America and Africa. To transform the industry, a highly engaged and inclusive program is necessary. Many companies have already adopted similar principles. We stay away from being too restrictive as each mine, country, region and jurisdiction has specific issues that cannot be resolved in a general manner. Our approach is flexible and adapts to the needs of each player.

Q: What would you consider to be the main consequences of the metal-price downturn and what role does Clareo play in this context?

A: When prices dropped, CEOs began to sharpen their focus on poor financial performance and productivity in operations. Processes became incredibly more effective and sustainable after companies re-evaluated their performance. Four years ago, we kicked off an initiative to measure how companies engaged with communities, the government and other stakeholders to promote better outcomes in the industry. I co-chaired a three-year initiative with Mark Cutifani, the CEO of Anglo American, which involved most of the major CEOs in the mining industry, NGOs and indigenous communities. Out of that effort came the formation of the

Clareo is a consultant focusing on improving practices within mining companies. Its methods promote the evaluation of how resources are used and the legacy that is left behind by mine closures

development partner approach in 2014, as well as the faith-based dialogues with The Vatican and Church of England.

Q: Why does the mining industry underinvest in technology and innovation?

A: The main factor centers around the massive cash flow that was previously injected into the sector. It pushed companies into a comfort zone. Mining operators were completely blind to cost reduction thanks to their financial reserves, driven by super-high prices. The industry was awash with money and innovation was low before the supercycle. Operators need to articulate strategies that invest in transformation and it does not necessarily have to involve millions of dollars to be efficient. The process can be done through collaboration. The first step toward innovation and sustainability is to recognize the importance of securing capital returns and community engagement. We work with companies like Goldcorp, which is responding positively to our approach. The strength of the innovative push ultimately depends on the budget and commitment of the company.

Q: What role does the public sphere have to play in the development of the sector?

A: Innovation ultimately depends on the country and the amount of commitment it shows. The government's role is to collaborate with the industry to promote sustainability and transformation while facilitating development. But the collaborative muscle should be strengthened and the public sector has to be careful not to smother the industry with too much prescriptive regulation. Successful countries are characterized by an engaged government that injects money into innovation and does not suffocate the private sector.

Mexico has to be more systematic and deliberate about the development of its resources. The country has many advantages, and it has not reached its full potential. It is ultimately closer to being a developed country than a developing country when compared to mining jurisdictions in other countries. The sophistication of its law is comparable to countries like Chile and Australia.

WHAT CHALLENGES WILL THE MINING INDUSTRY FACE OVER THE NEXT FEW YEARS?

By 2050, the UN estimates that the world population will reach 9.8 billion and 11.2 billion by 2100. The Brookings Institution also forecasts that the worldwide middle class could grow from 1.8 billion in 2013 to 4.9 billion in 2030. Considering this ongoing expansion, the mining industry, as the main supplier of raw materials needed for everything from cell phones to cars and solar panels, must act quickly to overcome the challenges of depleting ores and tightening regulations. Mexico Mining Review asked industry leaders what their main concerns are for the future and how are they preparing themselves for what lies ahead.



ORLEE WERTHEIM
*Head of Business Development
 - Global Mining at Toronto Stock
 Exchange and TSX Venture
 Exchange*

There is a lot of geopolitical uncertainty around the world at the moment and that could have varying effects on the industry. We cannot influence the commodity price so we must focus on controlling the factors that we can. One of the positive outcomes of the downturn is that mining companies have now become more streamlined and more disciplined in terms of their capital spending.

Innovation is of course a major issue because I believe the mining sector lags behind other industries in that regard and it is essential for the sector to strive to develop new technologies.



FELIPE RIVERA
*Industry Business/Process
 Automation Hub Leader Mexico
 and Central America at Schneider
 Electric Systems Mexico*

The industry must continuously find ways to compete more aggressively and efficiently in the global market. The only companies that will survive in these new political landscapes will be those that adapt best to the situation. Players need to stop seeking short term benefits in order gain better long-term advantages.

Mexico is preparing itself for important levels of growth in the next 10-15 years through its regulatory changes. In the short term, it may be causing problems in terms of adjustment but it is opening doors for the country's strong long-term growth. We are going through a difficult time but I doubt the rough transition will last much longer. The country should be able to adapt fully to the new regulatory landscape in a year or so. It obviously takes time to get used to the new laws.



PHILIP HOPWOOD
Global Mining Leader at Deloitte

Ore body grades are declining around the world and many of the largest gold, silver and copper mines are more than 50 years old. Mining companies have to ramp up exploration because the industry needs new large-scale assets. Grades are continuing to fall at an alarming rate and some of the world's biggest mines are reaching the end of their lifecycle so we need to start developing the next major assets to meet global demand for metals and minerals. Digitalization is also a significant challenge. Companies need to be more willing to accept new technologies and integrate them into their operations because this can translate into dramatic long-term savings.

Everything is in place for the mining sector to play a leading role in the national economy. We have so much geological potential, a strong group of experienced mining experts, fantastic interest from the foreign investor community and we have a strong mining law. The mining industry pays higher salaries than most of its competitors so it can be crucial in helping to develop Mexico's most underdeveloped areas. It has the potential to overtake the oil and gas industry because there is no state-owned mining company that monopolizes the market like PEMEX. I believe the government should place it higher on its list of priorities. We can only hope that these funds, which are generated from the hard work of thousands of Mexicans, are used in the correct manner to benefit people.



ALBERTO VAZQUEZ
Senior Partner at VHG Abogados

Everyone is talking about the return of the mining industry but prices in 2017 will remain similar to those of 2016 as the world continues to undergo high levels of volatility. The geopolitical context will continue to create waves like it did last year. As low metal prices continue to be present in the market, companies are decreasing their exploration investment, which is putting the future of the mining industry at risk. By 2050, analysts estimate that the consumption of metal is going to grow drastically and the current commodity price market is not stimulating enough growth to satisfy these demands. A mine takes many years to develop - even decades. The market needs to improve quickly to help promote growth in the exploration market and ensure future demand is met.



EDUARDO SALGADO
*Head of Mining Industry for KPMG
 Mexico*

The main challenge is in the excessive regulation to which the mining sector is subject, which is becoming ever stricter, driving up prices and making exploration and development slower and slower. This is only exacerbated by the negative perception of the mining sector perpetuated by the media and by the lack of certainty in mining legislation.

Although it has improved greatly, we still have significant infrastructure, service and safety deficiencies, which requires higher investment, costs and time to develop a project. A common problem, particularly with Canadian and foreign companies, is that many of the directors in charge of the projects and operations are not familiar with the country and have no experience working in Mexico.



JOSÉ ANTONIO BERLANGA
*Director General of Telson
 Resources*

Operators need to begin articulating strategies that invest in transformation but this does not necessarily have to involve millions of dollars to be efficient. The process can be done through collaboration. The first step toward innovation and sustainability is to recognize the importance of securing capital returns and community engagement. Companies have to understand that they cannot simply sit and wait for innovation to come around. We actually find that junior companies have an advantage, as most are in an entrepreneurial phase that is more open to innovation.



PETER BRYANT
Managing Partner of Clareo