RICK HOWES

We need disruptive innovation in the mining sector, as well

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While declining metal prices have cast a negative light on the status of the mining industry, the facts still speak to the tremendous role mining plays in the Canadian economy. More than 380,000 Canadians work directly in the industry, and in Ontario alone, another 68,000 work for mining industry suppliers. The dynamics of the global economy are forcing adjustment on many, but our country's historical strengths and continued expertise in mining positions us to lead globally moving forward.

To do so, however, requires us to apply the same innovative principles to our business as seen in software, financial services and retail. How will we adapt to disruption and the growing distribution of mining expertise around the world? The answer means focusing on how we can build the mines of the future that use technology and data to operate more efficiently and effectively.

The pressure for this isn't just the product of depressed demand and metals prices. The far more significant driver of change is a restructuring of our industry's competitive dynamic. In mining, competitiveness will no longer be premised upon land and capital, as it has been in the past. Instead, we're quickly moving toward a technology- and data-enabled period in which success and failure will depend on our ability to extract efficiencies and productivity from the information we collect at our operations.

The result will see the evolution of traditional mining companies into knowledge-based companies that use data analysis and technology to optimize the extraction of metals. In so doing, we'll soon come face to face with non-traditional competitors, companies whose superiority in technology and data analysis will make the physical extraction of a metal a secondary concern.

This competitive pressure raises the bar for our industry to new heights. Wanting to change is one thing – doing so is easier said than done, as I've learned firsthand. Our company made its first shift to the digital age and the Internet of Things with our underground mine in Chelopech, Bulgaria. We called it "taking the lid off the mine." Using wireless technologies for communications and location tracking, along with smart connected equipment and sensors, we now have the ability to see past rock to what is happening in real time throughout the mine. This allows for far better decisions to be made about the use of resources to achieve our goal of safe and cost-effective production.

Although risks had to be taken to make these advances, they pale in comparison to the many other risks that mining faces as we operate in remote and undeveloped regions of the world. We've done so because we believe we need to in order to remain a step ahead.

More broadly, however, our industry is late to the game with respect to technological adoption. And while there is certainly low-hanging fruit in sensors and wireless technologies, fully extracting the potential of big data and other next-generation technologies such as three-dimensional virtual reality and simulation will require the development of a rich ecosystem of talent and partners.

The tools and trades for 20th-century mining are being pushed aside by a new generation of techniques and processes that draw their inspiration from a variety of knowledge industries. With this change comes demand for the same type of talent that currently flows to software, gaming and other popular technology sectors. We need that talent, too.

It's true that these advances in technology will mean we need less labour as automation becomes more prevalent in our mines. The upside is the development of a new demand for mining knowledge workers, notably around the analysis of big data and the development of new systems that apply a variety of sensor, wireless and 3-D technologies. And while the physical footprint of Canadian mining companies will continue to grow abroad, our need for specialized knowledge workers in Canada will only grow if we effectively transition our companies into technology and data-enabled ones.

Ultimately, it's fair to say that our success in navigating the transition facing Canada's mining industry will require significant levels of risk-taking. This is inherent in any business that requires exceptionally large capital investments to be made. However, for mining, moving forward requires a new type of risk-taking that places technology and its utilization both under and above ground as a top priority. To facilitate this, we need to build an ecosystem around our industry that isn't just about the movement of raw materials, but rather about the exchange of information. Developing the expertise and knowledge to do so requires collaboration among industry, government and postsecondary institutions.

As our new federal partner looks to grow Canada's economy, our focus with regard to innovation can't simply be on traditional technology companies. Rather, we'll win by helping companies in industries where Canada has a strong competitive position to transition into the technology- and data-enabled global leaders of tomorrow.