CHILE, Viña del Mar, March 27 TH, 2021

WEEKLY REFLECTION

NEW COMPETENCY PROFILES FOR MINING 4.0

The digital transformation -also called the fourth industrial revolution- will reorient the transit of companies towards new directions characterized by innovative changes in the way of producing goods and services and in the consumption of inputs for their normal operation. It will also significantly impact and modify the way people work, live and relate to each other in the face of an unprecedented technological disruption, never before seen or imagined.
Humanity is facing a convergence of digital, physical and biological systems, giving rise to an explosion of inventions, new knowledge and disruptive innovations of all kinds, which should translate into a better quality of life for people.

In this context, it is necessary to have a HPRS vision (holistic, prospective, resilient and sustainable), a GLOVICOM view (global, virtual and complex) in TCVC contexts (turbulence, complexity, volatility and exponential change), acronyms that help in the interpretation of environmental signals in terms of answering the following questions:
What will be the new and novel human capital competency profiles for the periods 2021-2030 and 2030-2050?
Does the national mining sector have a critical mass of managers, professionals and technicians who are really prepared to lead in the digital-cultural transformation?
Will there be the prospective vision and political will for the creation of new careers that respond to the present and future needs of Industry 4.0?
Will national universities modify their current curricula, learning outcomes, competencies and graduation plans in order to respond to the growing demands of industry, i.e., the requirements of certain competency profiles?

The author of the present reflection is developing the text "Global Trends and the Mining of the Future", in which he will try to answer the questions formulated as a result of a research work he is carrying out. However, it is interesting to point out and anticipate some issues in relation to this matter and which are focused on soft (human) and hard (technological-environmental) competencies.

The new competency profile for a manager and professional will necessarily require: critical thinking, undisputed communication skills, high doses of creativity and collaboration. These are the four "C's", essential for effective leadership in Mining 4.0. However, innovation, teamwork, leadership, the ability to analyze large volumes of information, predictive analytics, good judgment, resilience, assertive decision making -especially in crisis scenarios-, the use of techniques, tools and programs for data analysis, planning and collaborative work, planning and collaborative work, and the ability to work collaboratively, planning and collaborative work, the

ability to read market signals and act in a timely manner, knowledge of cultures around the world, the incorporation of women in all activities of the mining business, the values of inclusiveness, respect and tolerance will be key to keep in mind when designing competency profiles.

On the other hand, the analysis merits the incorporation of subjects in relation to the competencies of the technological-environmental field, such as: artificial intelligence, the internet of things (IoT), robotics, cyber-physical systems, machine learning, modeling of complex phenomena, process automation, blockchain, 3D printing, cybersecurity, cloud computing, virtual and augmented reality, understanding and acting on climate change, circular economy, green mining, new materials, space and underwater research, among other highly relevant topics that will be required and demanded in personnel selection processes.

It is necessary to point out the contribution that higher education institutions should provide in terms of updating their curricula with a certain frequency, as well as establishing a joint work with mining companies, in order to achieve a fine tuning in the supply and demand of competences (congruence) that really puts human capital in a solid position in the market. On the other hand, it is necessary to highlight the importance of cognitive capital to add value to companies and move the thin line of knowledge, establishing new advances and developments that translate into a real contribution to science.