Workforce of the Future

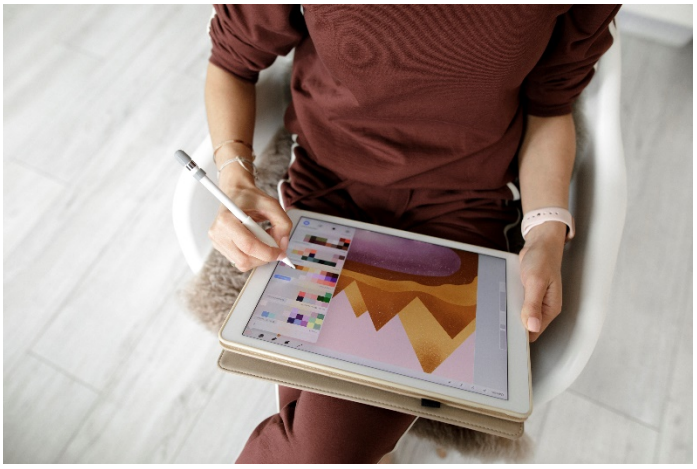
Defining Critical Skills in Saskatchewan's Digital, Dynamic and Diverse Minerals Industry

The Future of Work: Defining the Skills, Competencies and Roles for a **21st** Century Mining and Metals Workforce is the first report from a follow up investigation of the Digital Mining Transformation Initiative from 2018. This report was developed in partnership with Ernst & Young (EY) in 2020.

The investigation interviewed 10 human resources professionals from various mining/exploration companies with a focus on digital trends, skills, and recruitment challenges. The investigation assessed six traditional industry roles across value chain and identified the current state of their critical skills, and the predominant shifts in skills as it relates to future industry needs, cross-referenced with research and literature on the changing operating environment of the working world. Artificial Intelligence based software SpotMentor was used to assess the roles.

Key report findings include:

- The successful adoption and deployment of digital technologies to increase safety and productivity will depend on an educated workforce;
- As the future of work changes, so must the future of education; and
- The response will require new approaches and new partnerships among and between the minerals industry, post-secondary institutions, and government.



"The Digital Mining Transformation Initiative found that as digital technologies transform how mine and mills operate, the composition and level of specialization within the workforce will change," says Al Shpyth, IMII's Executive Director. "As a result, defining 21st century competencies and skills for Saskatchewan's minerals increasingly digital workforce has become a priority for IMII and its members. This report is our first effort at identifying such competencies and the ways by which new skills can be acquired."

To download a copy of the report, visit
www.imii.ca/communications/publications/

PROJECT INFORMATION:
Project Duration: March to November 2020
Project Cost: **$64,000**
IMII Contribution: $64,000

iMii International Minerals Innovation Institute

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Recommendations

The report makes two principal recommendations to support the digitization of the industry and help equip the workforce of the future:

1) Tripartite collaboration of companies, educational institutions, and government to create programs that promote career awareness and ensure students are provided with the appropriate skillsets and level of experience prior to graduating. Additionally, efforts should be spent developing programs geared towards career awareness in elementary, secondary, and post-secondary institutions to develop a robust interest in mining careers for years to come.

2) Micro-credentialing whereby enabling improved and innovative partnerships between educational institutions and mining organizations, the industry can move beyond conventional curriculum towards nimble educational strategies. Micro-credentialing programs would allow for the development of a modern curriculum to meet the needs of variety of stakeholders and emerging technologies.

Case studies include:

- The Exploration Geologist & Artificial Intelligence
- The Underground Miner & Remote Operations
- The Maintenance Supervisor & Next Generation ERP
- The Mining Engineer & Automation
- The Business Analyst & Advance Analytics
- The Information Technology Manager & Edge Computing

Emerging Skills:

- Digital Literacy: Refers to an individual's ability to find, evaluate, and compose clear information through writing and other media on various digital platforms
- Data Visualization: The ability to graphically represent information and data. By using visual elements like charts, graphs, and maps, data visualization tools provide an accessible way to see and understand trends, outliers, and patterns in data
- Artificial Intelligence: The knowledge and ability to work with intelligence demonstrated by machines, in contrast to the natural intelligence displayed by humans and other animals
- Stakeholder Management: The ability to manage stakeholders, whether an individual, group or organization that can affect, be affected by, or perceive itself to be affected by a program
- Agile Project Management: The ability to apply iterative approach to planning and guiding project processes
- Change Management: The ability to prepare, support and help individuals, teams, and organizations in making organizational change

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