**The Metro Vancouver Region's
High-tech Engine Report
Spotlight:**

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Artificial Intelligence's Transformative Potential and Opportunities in the Metro Vancouver Region

Artificial intelligence (AI) will enable the creation of novel services and give rise to entirely new industries, the same way the internet made possible e-commerce, social media, streaming services, and digital apps. It will also transform roles within existing industries. The rapid adoption of AI will bring numerous risks and opportunities. One clear risk is that of missing out, i.e. the risk of not benefiting from the potential productivity gains of AI integration. Embracing applied AI solutions offers the Metro Vancouver region significant opportunities for economic development, including driving innovation, improving efficiency across industries, and attracting investment.

Uneven AI adoption could create a new digital divide

Uneven adoption of AI could create a new version of the digital divide, based on the capacity and willingness of individuals, firms, and countries to integrate AI into their systems and processes. Firms that embrace AI, especially those that move swiftly, stand to gain a competitive edge. Growing evidence suggests that AI can make users more productive, and the job market will reward people who can use AI to increase their efficiency. The integration of AI in the workplace will enable automation of a wide variety of routine tasks, shifting the nature of many roles, and driving demand for training and upskilling. The urgency for AI adoption is acute for firms in both BC and Canada, where the prevalence of small firms and a more risk-averse business culture may hinder readiness to embrace AI. Multiplied across individuals and firms, reluctance to adopt AI could see Canada forego a much-needed productivity windfall.

AI as an economic development opportunity

At the same time, the Metro Vancouver region has a growing cluster of applied AI firms. A diverse array of firms harness the power of AI, ranging from Fujitsu's AI research group to enterprises such as Semios and Terramera in agritech, A&K Robotics and Sanctuary AI in robotics, and Variational AI and AbCellera in life sciences. SaaS ventures like Copilot AI and CharliAI, digital content creators like Lumen5, and sustainability-focused enterprises like intuitive in waste management and OnDeck in fisheries management contribute to the rich tapestry of AI innovation. According to Capital Compass, a new investment-tracking tool from Innovate BC, the Metro Vancouver region hosts over 130 firms dedicated to developing cutting-edge products and services grounded in applied AI.

Embracing AI and fostering its application in areas of significant regional expertise could create economic development opportunities. AI is an enabling technology that businesses can leverage to enhance decision-making, automate processes, and unlock insights from vast amounts of data. People and firms that can pair AI with a deep understanding of a data-intensive domain will benefit most from its adoption. The Metro Vancouver region and BC have such expertise in *resource extraction, construction, and health care*.

Applied AI in resource extraction, construction, and health care

Applied AI in resource extraction. The BC mining sector offers fertile ground for the development of best-in-class mining technology, especially in mineral exploration and processing. Mines are complex systems that generate vast data volumes, making them excellent candidates for AI-based improvements. Mining technology is alluring on two fronts. First, the industry urgently needs enhanced sustainability and efficiency. Second, escalating global demand driven by the need for critical minerals to support the clean energy transition ensures firms specializing in mining technology have global reach almost from inception, with ample potential for export-driven growth.

Firms Leading AI-Driven Mining Solutions in BC

MineSense utilizes AI to differentiate ore from waste, combining hardware and software for real-time data analysis and improved mining decision-making.

Hyperspectral Intelligence offers imaging technology for precise rock analysis in the mining and energy sectors, with cloud-based data processing for real-time insights.

Ideon Technologies applies cosmic-ray muon tomography and AI for subsurface imaging, detecting minerals and metals beneath the Earth, offering a sustainable and efficient exploration method.

Applied AI in construction. The Metro Vancouver region could also be at the leading edge of next generation, AI-based building techniques. **UBC researchers** have already designed AI-controlled drones for inspection work and real-time onsite mapping. Using a digital twin based on the mapping, a separate AI system can safely control equipment, such as a crane, to autonomously unload and place large cement blocks. The same lab is working on autonomously controlled excavators with ambitious plans for additional equipment. This work is at the leading edge of the coming transformation of the construction industry, which will make it possible to quickly build more housing with fewer people. As part of the CMHC Housing Supply Challenge, for example, **BC Housing, Metro Vancouver, Kope.ai**, and other partners are developing a digital catalog of pre-qualified, off-site building components and a software tool to configure mid-rise buildings for prefabricated construction. The resulting standardization should spur growth in the industry, provide greater cost certainty, and make the delivery of housing more efficient. The public interest in in AI-integrated construction is threefold. First, it makes it possible to build more housing, more rapidly. Second, it makes it possible to build at lower cost once the techniques achieve scale, even if it is initially more expensive.

Third, it allows the region to carve out a niche in which it excels, potentially becoming an engine for economic growth and innovation. The region is not alone in struggling to build housing, and there would be a substantial and growing export market for these technologies.

Applied AI in Healthcare. Integrating AI with health services and harnessing health data could improve patient outcomes and bolster the Life Sciences industry. The strained provincial health system faces constant pressure to deliver care that is faster, better, more accessible, and more cost-effective. Strategic, small-scale experimentation with applied AI targeting patient outcomes could alleviate these pressures. Fraser Health is spearheading such testing in patient settings. Similarly, AI's efficacy in research and drug discovery hinges on access to comprehensive health data, an area where Providence Health Care is making progress. With support, it could foster industry clustering and the emergence of anchor companies.

Regional organizations using applied AI for healthcare[1]

Fraser Health is advancing healthcare in BC by integrating applied AI across their services. Their Digital Patient and Provider Experience team uses predictive analytics and digital tools to enhance healthcare delivery. Key projects include a collaboration with Deloitte Canada to develop an AI-driven physician scheduling tool, funded by a 1.5-million-dollar Scale AI investment. They're also reducing clinical administrative workloads using generative AI from Google Cloud's Vertex AI and a Virtual AI Assistant in partnership with Amazon Web Services. Notably, the "GI Genius" system is improving colonoscopy accuracy through AI-assisted polyp detection, leading to improved patient outcomes.

Providence Health Care effectively balances data security with accessibility. Their subsidiary, Providence Health Care Ventures, integrates AI into healthcare using secure, data-driven strategies. Central to this effort is the Integrated Health Informatics Datalab (IHID), a leading health data program in Canada. IHID facilitates secure data access for the Life Science industry while adhering to strict privacy standards. Its cloud-based system supports seamless data integration and ensures patient privacy through de-identification and stringent controls. This model offers predictable costs and timing for employing AI, fostering innovation and has the potential to attract global firms. Internally, Providence uses AI to optimize its operations.

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1   For full information about the Fraser Health and Providence Health Care's use of applied AI, see Invest Vancouver's report "The Metro Vancouver Region's High-tech Engine: Boosting the Economic Landscape."

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Learn more about Invest Vancouver and its new Tech Sector Report

This report spotlight is part of Invest Vancouver's comprehensive report, "The Metro Vancouver Region's High-tech Engine: Boosting the Economic Landscape." Invest Vancouver is the economic development leadership service for the Metro Vancouver region. Interested in learning more or investing in the region? Contact info@investvancouver.ca