# Legal challenges posed by the rapid rise of consumer neurotechnology in Canada



The rapid advancement and proliferation of neurotechnology, or "neurotech," in consumer applications has raised a range of legal questions concerning privacy, intellectual property, medical regulation, and evidentiary matters, according to a recent analysis from McMillan LLP. Neurotech encompasses technologies that record, analyse, or influence the neurons in the human nervous system, divided broadly into three categories: neuroimaging (monitoring brain structure and function), neuromodulation (influencing brain function), and brain-computer interfaces (BCIs), which enable direct communication between brain activity and external devices.

Traditionally, neurotech has seen extensive use in medical and research contexts, such as electroencephalography (EEG), magnetic resonance imaging (MRI), positron emission tomography (PET), deep brain stimulation for diseases like Parkinson's, and cochlear implants. However, consumer applications are now expanding rapidly, facilitated by less intrusive devices and artificial intelligence innovations. For example, last year, students from McGill University developed a mind-controlled wheelchair within a month, while neuroscience projects like Meta’s Brain2Qwerty aim to translate brain activity into text. Neuralink, the company founded by Elon Musk, is conducting clinical trials in Canada involving a wireless brain implant that can be controlled remotely, a device that has demonstrated control of video games by a monkey’s mind in previous demonstrations.

From a legal standpoint, neurotech products face regulatory oversight in Canada primarily through Health Canada. Devices intended for medical use are regulated under the Food and Drugs Act, which defines a "device" broadly to include instruments used for diagnostic or therapeutic purposes. Such devices are categorised into four risk levels with stricter requirements for higher-risk, more invasive implants or those requiring external power. For instance, Health Canada has already granted medical device licences for certain neurotech products such as earbuds and caps used for health monitoring. Meanwhile, consumer neurotech products, including those for entertainment or productivity, fall under the Canada Consumer Product Safety Act (CCPSA), which prohibits products posing dangers to human health or safety. Such legislation also mandates recalls for devices presenting injury risks.

Privacy and data protection issues are especially prominent given that neurotech often involves the collection and processing of neural data — raw brain data and information derived from it. This neural data is likely considered sensitive personal information under Canadian privacy laws, bringing heightened consent and data protection obligations. Regulators are expected to scrutinise the use of neural data closely, requiring explicit consent and proportionate need for its processing. The emerging risks include potential misuse for profiling, manipulation, or blackmail, especially as developments in artificial intelligence enhance the interpretative capabilities of these technologies. Additionally, neural data may qualify as biometric information, further increasing regulatory demands, including under Quebec’s legal framework for information technology.

Intellectual property (IP) issues also arise with neurotech's evolving capabilities. As the technology advances towards interpreting complex subconscious data such as dreams or emotions, questions of ownership and rights emerge. For example, ownership of summaries or creative outputs generated by neurotech—such as artwork or music based on subconscious thought patterns—are unclear. The individual whose brain data is processed might claim ownership, but so might the technology provider responsible for data transformation. This ambiguity parallels broader debates on AI-generated creations and their copyright status. Furthermore, neurotech raises concerns about unintended disclosure of confidential information; sensitive corporate secrets stored subconsciously could inadvertently be leaked if brain data is compromised, presenting new challenges for confidentiality protections within businesses.

In legal proceedings, the prospect of using neural data as evidence introduces further complexity. While this technology could provide insights into an individual’s memory or mental state, its admissibility remains uncertain. Canadian courts have historically rejected polygraph tests as evidence on grounds including unreliability and procedural rules. Similarly, neurotech evidence would likely face rigorous scrutiny concerning scientific validity and necessity. Moreover, reliance on neural data to assess character traits raises significant human rights considerations related to profiling based on characteristics beyond an individual's control.

Given these novel and multifaceted concerns, there is discussion over whether Canada should establish a dedicated legal framework tailored to neurotech. While current laws cover many issues, some experts suggest gaps exist. This situation mirrors debates on the need for AI-specific legislation. Internationally, some jurisdictions have begun enacting neurotech-specific protections: Chile has enshrined neuro-rights such as mental privacy and free will in its constitution, and in 2024, the US states of Colorado and California introduced laws safeguarding privacy regarding brain data.

The analysis concludes that consumer neurotechnology is developing swiftly, expanding its applications and attendant legal risks. McMillan LLP highlights the importance of ongoing monitoring to navigate the evolving regulatory and legal landscape relevant to neurotechnology in Canada. The firm also emphasises that their overview does not constitute legal advice and recommends obtaining specific legal counsel for decision-making related to this field.

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

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