

Table 4

Ownership, Control, Access and Protection of Indigenous Communities Data with Distributed Ledger (Blockchain) Technology

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During this presentation, our team will discuss how Indigenous people can use distributed ledger (blockchain) technology for development of online systems in ways that are respectful of their inherent right to privacy and control over their own cultural and community information.

OCAP (First Nations Information Governance Centre, 2014) refers to a set of “standards for conducting research on First Nations” in Canada (p. 4). Indigenous communities have been the subject of research by foreign institutions since colonists first arrived on the continent. As such, they have a long list of grievances about how data has been collected, used, distributed, and interpreted. The OCAP standards were developed in order to ensure that research on Indigenous peoples 1) serves First Nations’ priorities, 2) ensures meaningful community involvement, benefit, and employment, 3) ensures the full knowledge and consent of the community, 4) is built upon trust, relationship, and human dignity, and 5) that data is returned, interpreted fairly, and with no/little harm to the community.

As per the acronym, the pillars of OCAP are ownership, control, access, and possession. **Ownership** is not the same as stewardship or guardianship; rather, it “identifies the relationship between a people and their data” (p.5). It is similar to the Western European concept of individual ownership but can refer to the collective ownership of data by a community. **Control** refers to the rights of First nations to direct how information is collected, used, and shared. First nations must also have full **access** to data about themselves and their communities. The pillar of **possession** refers to stewardship of data; it is the “mechanism to assert and protect ownership and control” (p. 5).

Distributed Ledger (blockchain) technology provides an alternative for distributed databases. It creates a secure (un-hackable) and immutable record of data transactions, thus tracking how data are shared and accessed. The access and operations on data can be regulated via “smart contracts” that allow setting conditions for accessing the data – by whom, for what purpose, for how long, under what conditions, whether access is granted to the original data or just to make a query or get derivative data from the original. It allows the tracking of who has accessed the data, which data, and for what purpose. In addition, it allows data owners to benefit from sharing their data by defining “smart contracts” that regulate data-sharing in exchange for monetary reward or for another form of recognition (such as credit, citation, reputational rewards). These features, along with the lack of centralization in blockchain ensure adherence to the principles of OCAP for collecting, protecting, using and sharing data. They empower Indigenous communities to benefit from their data, under their own conditions, rather than surrendering it to centralized services.

The First Nations Information Governance Centre, T. (2014). *Ownership, control, access and possession (OCAP): The path to First Nations information governance*. Ottawa, Ontario. Retrieved from: https://fnigc.ca/sites/default/files/docs/ocap_path_to_fn_information_governance_en_final.pdf