Blockchain applications

Blockchain is more than virtual electronic money, it's essentially a technology of storing and transmitting data without the need for governance or regulations by Trusted-third-parties (TTPs). Ethereum is one of the blockchains which proves this, with its smart contracts, and Turing complete programming language, Solidity. As such, the processing of all Ethereum smart contracts is deterministic and predictable as they are executed by all the operating nodes' Ethereum-virtual-machine (EVM); the facilitation and validation of the contracts are ensured by the distributed node consensus. Form an object-oriented programming (OOP) POV, this software architecture provides generality and common logic for the execution of code and, similar to an interface. This technology also comprises the perks of tamper-proof storage, as well as interoperability, which makes it highly desirable for applications. Especially those where the integrity, security, and trust of valid data are of high priority; e.g. those governing storage and accessibility of medical journals, the legitimacy of parts in a supply chain management system, and so forth (Cui, P et al., 2019 & Azaria, A et al., 2016). For both two proposed systems, data and information are passed through different data silos due to their vast complexity. The blockchain can be used to ensure authenticity and certification of the data processing at each of these steps of transfer, which in total creates a more holistically secure and trustworthy system. This is true both in terms of processing, storing, and accessing data.

References:

Cui, P., Dixon, J., Guin, U., & Dimase, D. (2019). A blockchain-based framework for supply chain provenance. IEEE Access, 7, 157113-157125.

Azaria, A., Ekblaw, A., Vieira, T., & Lippman, A. (2016, August). Medrec: Using blockchain for medical data access and permission management. In 2016 2nd international conference on open and big data (OBD) (pp. 25-30). IEEE.