



# 12 Principles of the Trusted Learner Network (TLN)

Access the full TLN paper at [trust.asu.edu](https://trust.asu.edu)

## 1 Immutability

The data in the Trusted Learner Record are immutable because of the technology on which it is constructed – blockchain. Once an accomplishment is written to the chain by a TLN member, it cannot be manipulated or changed. This guarantees authenticity by technically confirming assertions are unaltered.

## 2 Statefulness

Access to TLN records is controlled through smart contracts that are governed by the Community. Smart contracts may dictate that an accomplishment expires after a certain period or is revoked in others, as in the case of a nursing license that requires renewal or an incorrectly-issued grade that is appealed. Only the current state of the record is therefore accessible.

## 3 Ownership

The ability to view and share a record or set of records is the responsibility and right of the learner. Data is not shared over the TLN without the express consent of the learner. Ownership also carries with it the privilege to append corroborating assets to records as evidence. The validity of such is asserted only by the learner and not the institution.

## 4 Consent

Consent is directly stored on the blockchain, ensuring that the learner's agency has guaranteed authenticity. This consent is controlled via the learner's user experience or on behalf of the learner by an issuing institution. Learner consent can be revoked at any time, including the right to be forgotten on the network in respect to sharing assertions with anyone other than the issuer.

## 5 Assertion

The right to issue and update assertions (if they can be updated according to governance decisions) lies within the purview of the institution or individual that generates the assertion. The value of that assertion is directly related to the trust the TLN has in that issuer.

## 6 Security by Design

The security of the TLN is provided by the private, permissioned blockchain architecture itself in conjunction with the governance framework that wraps around it. Institutions that can create nodes and write records to the chain are vetted by the Community, creating a pool of trusted actors that is difficult to circumvent.

## 7 Privacy

Augmenting the principle of consent, analytics and insights gathered for optimizing algorithms and service design logic will always respect the privacy of learners in the TLN. Access control is coupled with encryption to guarantee that privacy is assured.

## 8 Hybrid Chain

The TLN will combine the security of a closed, permissioned blockchain for institutions and learners with the shareability of a public chain for non-PII assertions. By creating a hybrid model, learners are assured their private data is protected while providing them maximum flexibility to share assertions with whomever they choose.

## 9 Open Source + Community Source

The technology to participate in the TLN is not dependent on the purchase of proprietary or commercial vendor products. The database architecture and the means of interacting with it will be based on open-source and community-source tools, protocols and APIs, allowing equal access to participate.

## 10 Identity

Identity and Access Management is central to the confidence in and adoption of the TLN as a mechanism for value. The TLN must incorporate a variety of identities from existing sources; thus models of self-sovereign identity, in which the learner is the central agent in connecting and asserting identities, are central to the TLN.

## 11 Architecture

The TLN is architected to support a network of networks. That is, the TLN is not designed to be a hierarchical network with a single anchor entity. Rather, over time, the network effect of the distributed database should naturally evolve into multiple networks to support cross-sections of different members. As in all well-designed networks, the intent is to mirror these principles in all derivative networks to assure overall integrity, consistency and future interoperability.

## 12 Governance

The creation of a technical architecture is not enough; the TLN is given meaning by the relationships of institutions and learners that create trust. Thus, the TLN will be governed by a coalition of learners, institutions, employers and other assertion-granting actors who will seek to create organic, learner-centric policies that achieve the goals of credential management.