

... interoperability, ...

One of the key technical challenges facing Blockchain is the question of interoperability, at the technical level as well as at the level of semantics (i.e. what information is communicated by the data element). Numerous platforms are being developed that use different technical interfaces and algorithms and that do not “talk to each other”. This “digital island problem” is the subject of active research within the Blockchain community. Technical solutions are emerging, but are still in their infancy for the time being.

The semantics of the information exchanged are also being actively addressed, in order to ensure that sender, receiver and anyone consulting understand the same data in the same way. International organizations such as the International Chamber of Commerce (ICC), International Organization for Standardization (ISO), United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) and the World Customs Organization (WCO), have created working groups to initiate discussions to look into the issue and develop interoperability standards.

... and legal issues.

The wide-scale deployment of Blockchain requires a conducive regulatory framework that recognizes the legal validity of blockchain transactions, clarifies applicable law and liabilities, and regulates the way data can be accessed and used. The most critical issue relates to the legal status of blockchain transactions. Legislation that recognizes the validity of e-signatures, e-documents and e-transactions, in particular blockchain transactions, is crucial. In 2017, the United Nations Commission on International Trade Law (UNCITRAL) adopted the Model Law on Electronic Transferable Records, and various governments are working on legislation to recognize blockchain transactions, but much remains to be done. Issues related to applicable jurisdiction and liability, while problematic in the case of permissionless blockchains, often allow for a technical workaround in the context of permissioned blockchains.

Another potentially challenging legal issue is the question of data privacy and the right to be forgotten embodied in some legislation. The principles of Blockchain and of the right to be forgotten seem *a priori* incompatible. Some observers note, however, that both pursue the same goal of giving individuals more control over their personal data, but through different mechanisms.