

## **Question 22/16 – Multimedia aspects of distributed ledger technologies and e-services**

(Continuation of Question 22/16)

### **1 Motivation**

A distributed ledger is a type of ledger that is shared, replicated, and synchronized in a distributed and decentralized manner. Distributed ledger technologies (DLT) are secure by design and exemplify a distributed computing system with high Byzantine fault tolerance. Decentralized consensus has therefore been achieved with a DLT system. This makes DLT potentially suitable for processing and storing the management of transactions, events and records immutably in a decentralized fashion. DLT has a great potential to enhance the trustworthiness of e-services and applications in a broad area of digitalization of society, including but not limited to digital identity management, financial transaction processing, government issued document provenance, international telecommunication settlements, copyright management of multimedia content, food traceability, and voting.

Currently, a range of standardization-related and industry initiatives have commenced across the globe examining different aspects of DLT. Various activities, including exploratory workshops and cross-industry collaboration initiatives, have served as forums for discussion of potential technical challenges around the widespread adoption of DLT.

ITU-T SG16 is a leading group of e-services standardization. This Question is the dedicate group under SG16 to conduct DLT standards related study and to develop Recommendations on DLT and DLT based e-services.

### **2 Study items**

Study items to be considered include, but are not limited to:

- concepts, coverage, vision and use cases of e-services based on DLT;
- characteristics and requirements for e-services based on DLT;
- architectural framework and communication technologies of e- services based on DLT;
- analysis and evaluation of the current status of DLT and its maturity to support e-services;
- investigate the relations between DLT, digital fiat currencies and crypto tokens, including management, exchange and transactions, etc.;
- define general requirements and framework for DLT;
- research security and privacy aspects related to e-services based on DLT;
- examine means for extending online trust in the context of e-services using DLT;
- identify stakeholders with whom ITU-T could collaborate further on and potential collective actions and specific next steps.

NOTE – This Question will take into consideration identified policy and regulatory implications of application of DLT in e-services.

### **3 Tasks**

Tasks include, but are not limited to:

- utilize the deliverables related to DLT that were produced by relevant ITU-T Focus Groups and study gaps amongst those groups and what need to be achieved;
- develop documents which reflect how technologies enable applications and services by the underlying nature of the ecosystem, taking into account existing applicable best practices of risk assessment methodologies and business models for DLT applications;

- develop Recommendations on the definitions of terminologies, taxonomy, reference architecture, testing and evaluation for DLT systems, and DLT-based e-services including but not limited to finance, government, industry, telecommunication, and healthcare;
- study and analyse the implications of mandating interoperability and interconnection of services based on DLT. This will include the development of a standardization roadmap for interoperable services based on DLT taking into consideration the interoperability challenges and best practices;
- study and analyse technology competitiveness issues that may hinder the deployment of e-services based on DLT;
- develop technical reports describing and addressing the standardization gaps and identifying future DLT-based e-services standardization work for ITU-T study groups;
- maintain deliverables under the responsibility of the Question, including: Recommendations ITU-T F.751.0, F.751.1, F.751.2; Technical Papers ITU-T HSTP.DLT-RF, HSTP.DLT-UC.

An up-to-date status of work under this Question is contained in the SG16 work programme ([https://www.itu.int/ITU-T/workprog/wp\\_search.aspx?sp=17&q=22/16](https://www.itu.int/ITU-T/workprog/wp_search.aspx?sp=17&q=22/16)).

## **4 Relationships**

### **Recommendations**

- N/A

### **Questions**

- Questions [G/16, H/16, K/16, N/16]

### **Study groups**

- ITU-T SG17 Q14/17, "Distributed Ledger Technologies (DLT) security"
- ITU-T SG3, SG5, SG11, SG13 and SG20

### **Other bodies**

- ITU-T JCA-MMeS
- ISO/TC 307
- ISO/TC 307/JWG 4 (Joint ISO/TC 307 - ISO/IEC JTC 1/SC 27 WG on blockchain and distributed ledger technologies and IT Security techniques)
- ISO/IEC JTC1/SC 29
- ETSI ISG PDL
- IEEE, IETF
- CEN/CENELEC
- UN/CEFACT
- United for Smart Sustainable Cities (U4SSC) initiative
- World Bank
- Linux Foundation Hyperledger
- Enterprise Ethereum Alliance