Digital Letter of Credit

Section 1: Summary

| Use Case Summary			
Use Case ID:	FIN-002	**Use Case Type:**	Vertical
Submission Date:	December 28, 2018	**Is Use Case supporting SDGs**	Yes
Use Case Title:	Digital Letter of Credit	**Domain:**	List 8 Appendix 2
Status of Case	*Pilot*	**Sub-Domain**	1. Finance a. Financial management & accounting b. International & interbank payments c. Reduction of Fraud d. Financial messaging e. Asset lifecycles and history f. Trade finance g. AML/KYC
Contact information of person submitting/ managing the use-case	Full Name: Dergachev Ivan Job Title: Project manager, Fintech Association E-mail address: ivan.dergachev@fintechru.org Telephone number: +7 926 773 77 74 Full Name: Alexander Chuburkov Job Title: Expert GOST R * Russian TC 26 Cryptography and security mechanisms * ISO TC 307 Blockchain & DLT * Fintech Association (RUS) * FOCUS GROUP DLT ITU-T E-mail address: chuburkovalex@gmail.com Telephone number: +7 965 336 62 92		
Proposing Organization	Fintech Association Address: 4 Shlyuzovaya Embankment, Moscow, 115114, Russia http://fintechru.org/		
Short Description	Development and implementation of a software package to opening and implementation of a digital letter of credit based on a distributed ledger platform.		
Long Description	**The goals of the project** are the creation and implementation of the application, improvement of legal regulation of digital letter of credit. **The objectives of the project are:**		

	• *the formation of requirements and hypotheses for testing* (business requirements, functional requirements, hypothesis for testing on the prototype of the system, the target scheme of the system node and integration requirements);
	• *the development of a prototype system* (the prototype system, the test system prototype, the testing protocols of the prototype system);
	• *the* development of the pilot system and its integration with external systems (the pilot system, the script /test reports of the pilot system, reports on the testing of hypotheses, the program of activities/reports on the readiness of the transition to experimental-industrial exploitation system);
	• the introduction of the system/launch of the pilot (reports on the results of the commercial operation system, acts of transition to the commercial operation system, plan / report on the distribution of the system);
	• *the identification of obstacles/opportunities to improve the base of the regulatory legal act for digital letter of credit, the preparation of proposals and the organization of their adoption* (a list of regulatory legal act in digital credit for development/change, proposals in digital credit for the enactment of the PPA digital credit enacted).
	Projected effect: - reduction the duration of information exchange processes from 4 days to 0.5 days; - reduction of labor costs of the Bank's involved employees - up to 20%;

SDG in Focus (when applicable)			
Value Transfer:		**Number of Users:**	10
Users:	Exporters, Importers, Banks, Shipping companies		
Types of Users:	Buyer, Buyer's Bank, Supplier's Bank, Supplier.		
Stakeholders	Exporters, Importers, banks		
Data:	Electronic documents, accounts in DLT		
Identification:	Full identification of participants required		
Predicted Outcomes:	Automation of document and supply tracks involved into a Letter of Credit implementation. Reduction in the term of implementation of a letter of credit with a 15 days' cover.		

Overview of the Business Problem or Opportunity
The letter of credit transaction may involve a large number of participants of the business process that do not know and do not trust each other.
The first stage of project addresses the issue of eliminating paper work, by shifting it into digital form. At the second stage, it is expected to transfer payments between the counterparties using digital currency (CBDC).
The objectives of the project-automation of document flow, which are involved in the design of the letter of credit; eliminate paperwork and related time delays in the application of transactions.
Paper work elimination could be possible solution to problem of distributed data storage.
For customers it means significantly reduced time for registration and processing of documents (from 10 days to 4 hours). For Banks it means that they will be able to reduce transaction costs for processing transactions.
Project boundary:
Start: the buyer forms a business documents for issuance of the letter of credit (the condition of the contract for a bargain).
End: the buyer and the supplier are notified of the payment of the transaction.

Why Distributed Ledger Technology?
The Blockchain and smart-contracts make this interaction trustworthy, transparent and understandable for each one of them. The implementation of DLT solution, which allows tracking paid LoC issuance, can eliminate paperwork and shorten the time of transaction.

Section 2: Current process

Current Solutions
Documents exist in paper form; funds are transferred by corresponding bank.

| Existing Flow (as-is)		
Step	**User Actions**	**System Actions**
1.	Importer contacts bank for a LoC issuance	n/a
2.	Importer's bank checks if Importer is able to pay for goods	n/a
3.	Exporter receives LoC and checks that it matches with the contract	n/a
4.	Once the goods have been shipped, the Importer's bank pays to Exporter	n/a

Process scheme (as-is)
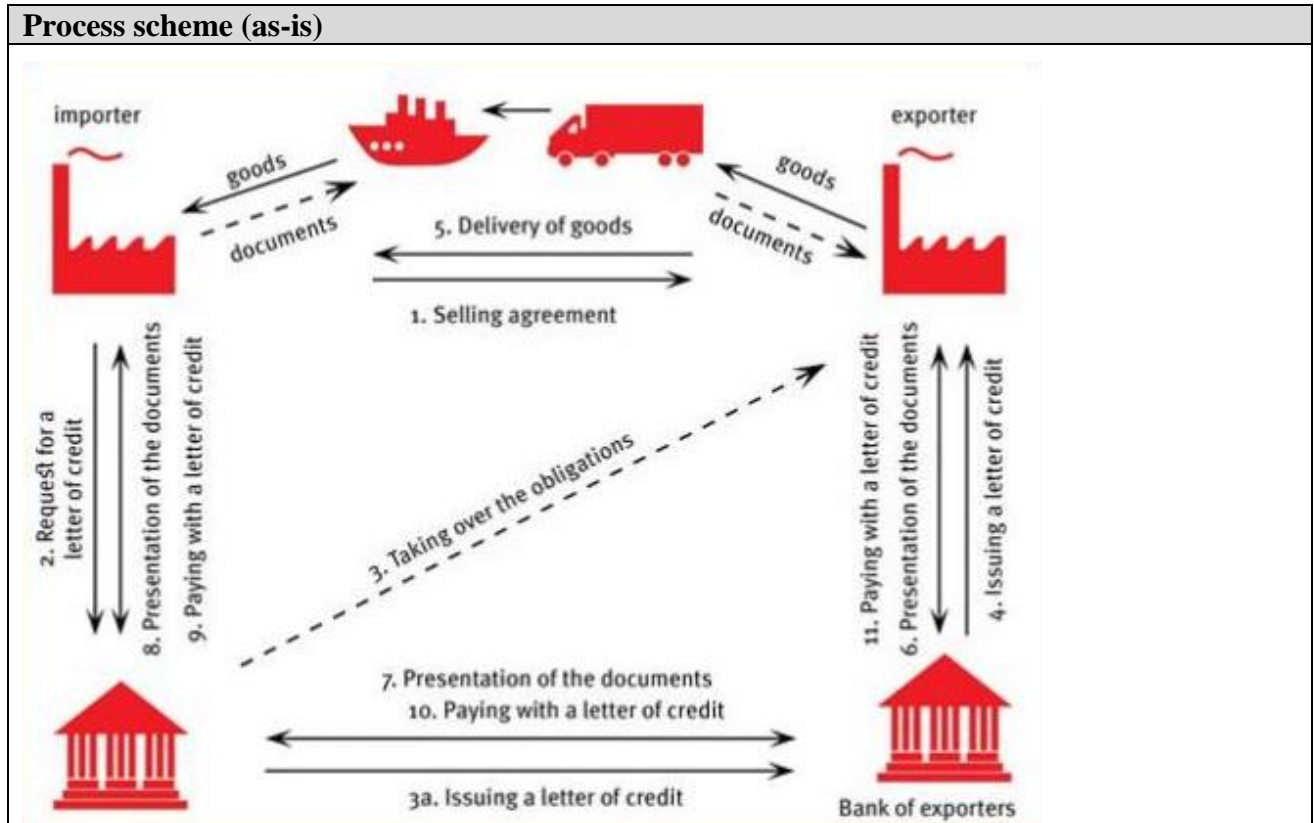
Data and information (as-is)

Data	Type	Description
1	Documents	Documents (Contract, Letter of credit, Transportation documents, Agreements)
2	Payment transactions	Letter of Credit payments

Participants and their roles (as-is)

Actor	Type/Role	Description
1	**Exporter**	Supplier of goods or services
2	**Exporter's bank**	Bank of supplier (letter of credit issuance)
3	**Importer**	Consumer of goods or services
4	**Importer's bank**	Bank of consumer (letter of credit payments)
5	**Shipping company**	The companies which delivers and stores the goods to the Importer (contracts and other documents validation, consignment forming, shipment)

Section 3: Expected process

Step	User Actions	System Actions
1.	The Importer writes Contract`s public hashes to the blockchain and Contract's private data to the distributed storage	The System writes the smart contract to the blockchain and saves files with private data to the distributed storage
2.	The Exporter uses Contract's public identifiers and his private keys to access and validate the Contract's data	Marks the smart contract state and/or files in the distributed storage as validated by the Exporter
3	The Importer deposits tokens in amount specified in the Contract	Increases tokens amount on the account of smart-contract
4	The Exporter handles goods to the shipping company, the shipping company writes hash of the goods consignment to the blockchain and the private goods consignment to the distributed storage	Saves hash of the goods consignment to the smart contract and private consignment files to the distributed storage
5	The Exporter writes private goods consignment notes and Tax invoice to the distributed storage and their hashes to the blockchain	Saves the data into distributed storage and blockchain
6	The Importer validates the goods consignment	Marks the goods consignment as validated by the Importer and the smart contract sends tokens to the Exporter's account
7	Informing the shipping company about tokens sent to the Exporter account.	Shipment of goods to the Importer.

The heading above the table reads:

Expected Flow (to-be)

Process scheme (to-be)
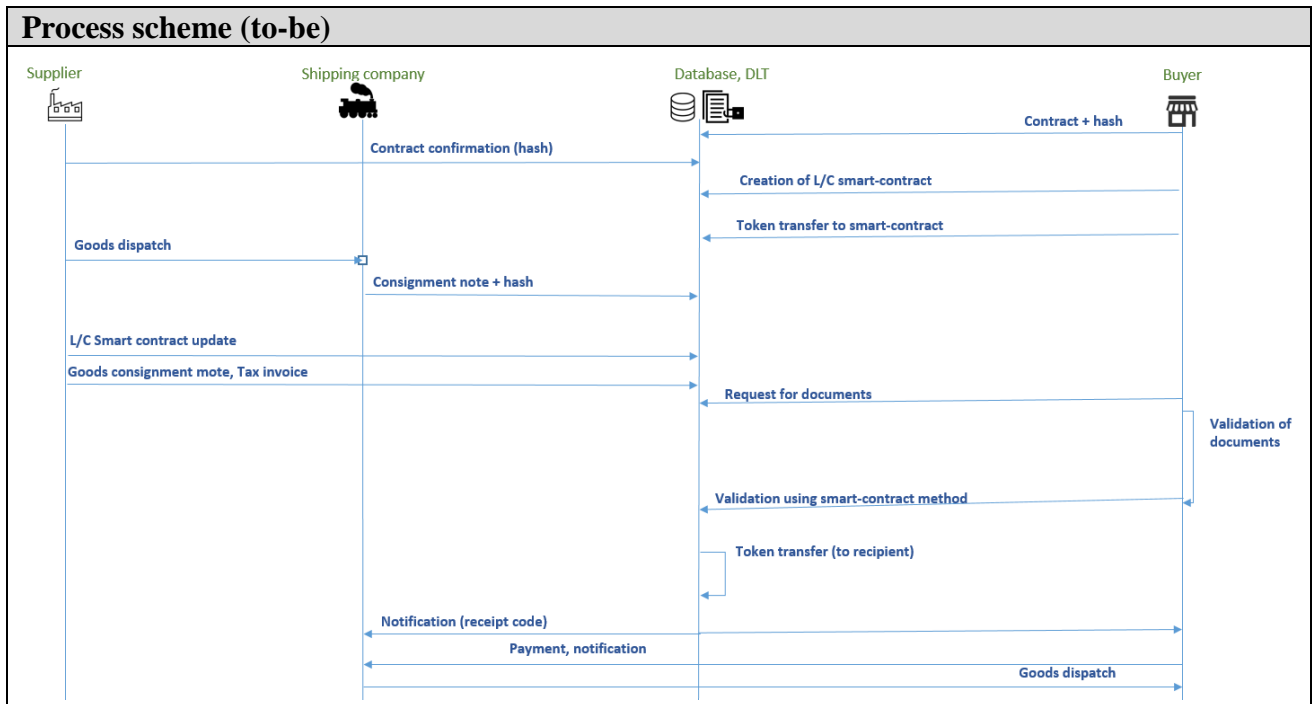
Participants and their roles

Actor	Type/Role	Description
1	Importer	The Importer of the goods
2	Exporter	The Exporter of the goods
3	Shipping company	The companies which delivers and stores the goods to the Importer (contracts and other documents validation, consignment forming, shipment)

Data and information

Data	Type	Description
1	Documents	Documents' hashes exchange in DLT-network
2	Payment transactions	Letter of Credit payments

Security and privacy

1. The contract conditions and payment transactions should be confidential to other blockchain network participants;
2. DLT-system should be able to provide mechanisms of L/C documents and payments data integrity control;
3. L/C documents and payments data and related services (System Actions) should be available in 24/7/365 mode.

Main Success Scenario + expected time line
1. All information exchange and payments occur in Distributed Ledger in automatic mode; *2.* Payments are transferred using digital currency (CBDC).

Conditions (pre- or post-)
All parties are connected to DLT-network

Performance needs
1. Payment transactions processing (near real time, 24/7/365) *2.* Volume of transactions > 700 Tx/day. *3.* Network participants > 150

Legal considerations
Eliminating paper documents shifting them to digital form.

Risks
1. Legal risks, including regulation of CBDC and cryptocurrencies, documents in digital form; 2. Security risks; 3. Risks related to DLT immaturity.

Special Requirements
Hypotheses are tested in the framework of the implemented functional prototype Digital letter of credit system. The buyer and the supplier of the customers of one Bank (buyer's Bank=supplier's Bank), connected or have access to the digital letter of credit system

Appendix 1:
Domains and subdomains for use cases categorization

Vertical:

2. Finance
    a. Financial management & accounting
    b. International & interbank payments
    c. Clearing and settlement
    d. Reduction of Fraud
    e. Financial messaging
    f. Asset lifecycles and history
    g. Trade finance
    h. Regulatory compliance & audit
    i. AML/KYC
    j. Insurance
    k. Peer-to-peer transactions
3. Healthcare
    a. Pharma
    b. Biotechnology
    c. Medicine
4. Industries
    a. Manufacturing
    b. Energy
    c. Chemical
    d. Retail
    e. Real estate
    f. IT and telco
    g. Supply chain management
    h. Transportation
    i. Agriculture
5. Government and public sector
    a. Taxes
    b. Government and non-profit transparency
    c. Legislation, compliance & regulatory oversight
    d. Voting
    e. Taxation and customs
    f. Intellectual property management
    g. Land Registries

Horizontal:

1. Identity management
2. Security management
    a. Public Key Infrastructure
3. Internet of Things

4. Data processing, storage and management
   a. Data Validation (includes provenance)