Creation of a digital corridor on the "Trans-Caspian International Transport Route"

Block chain technology and invoice recognition

Nur-Sultan, 2021

Description of key changes and functional scope

№	Background	Brief description of the planned change
1	Lack of a single digital information space at the sea, railway-sea, sea-railway, railway-railway junctions	Creation of a single information space for ports, railway administrations and freight forwarders of the countries participating in the TCIT
2	Administrative and legal barriers: Differences in the system of registration of consignment notes	Creation and implementation of a unified CIM /AIRFT invoice between all participants applying CIM and SMGS invoices on the territory of the TMTM
3	Illegitimacy of electronic transport documents	Implementation of electronic document management, with amendments to regulatory documents and implementation of interaction through EDS (EDS for non-residents of the Republic of Kazakhstan)/Smart contract
4	Long-term customs clearance	Integration with the customs authorities of the TCIT member countries to speed up the customs clearance process and simplify the inspection procedure
5	The absence of open access operational data on the location of the cargo from the shipper/consignee	Implementation of a single cargo tracking/monitoring tool within a single digital corridor
6	Lack of consistency and efficiency in resolving disputes over the safety of cargo	Creation of " Automated insurance processing, insurance guarantees"
7	Complex payment procedure for transportation/ verification of payment implementation on each section of the route	Creating an international " Banking Processing"

Objective of the project:

Enhancement attractiveness of transit traffic along TCIT route by reducing the time and simplifying the procedure for processing transportation documents.

Tasks the project

- **Creature centralized software solution, which manages the process of interaction between the participants in the transportation process of TCIT and allows whatever make shipments from each other using paperless technology on-line through a single window**

- Optimization resources for cargo clearance by speeding up the processing of shipping documents

- Implementation of the technology of paperless document flow between the participants of the TCIT optimize the resources for registration freight documents

- Creature Blockchain systems for the automatic generation of shipping documents for various railway administrations and transportation participants

- Implementation of a single tool for tracking / monitoring cargo within a single digital corridor

- Development and implementation of a web service for image recognition, which uses a set of neural networks to recognize and digitize images. Allows you to process the maximum number of transportation documents in the shortest possible time

- Creation of a unified client service (mobile application, web-application) for carrying out any operations related to transportation.

Pre-design research "Creation of a single digital corridor TCIT "

March-September, 2020 Study of business processes along the TCIT route

The following cargo transportation processes have been studied and described:

- The origin of the cargo in China and the arrival of the train at the station. Khorgos (China), document processing
- Arrival at the station. Altynkol (KRS), transshipment and transportation of cargo in the export direction, Aktau port (KRS)
- Loading and paperwork Aktau port, KMTF (KRS)
- Arrival of cargo and registration of documents port of Alat (AZR)
- Transit through the territory of Azerbaijan, Georgia, Turkey
- Customs declaration
- Banking, insurance processing

April - August, 2020 Analysis of the participants of the transportation process on the territory of TCIT

A survey of forwarding companies, participants Middle Corridor for the study of IT infrastructure and problems of interaction between participants in the transportation process

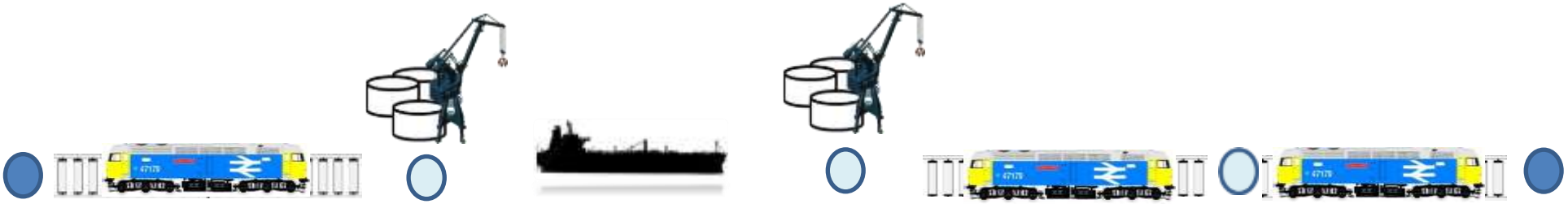
July - October, 2020 Analysis of integration solutions for organizing the transportation process

- Comparative analysis carried out Blockchain systems - Sirius, TradeLens, Vinturas, ShipChain
- Considered IT solutions of TCIT participants
- The documents that are the point of entry and exit into the process of cargo transportation have been studied
- An integration scheme for the pilot route has been drawn up

October, 2020 Study of points of integration of ACS CCW of JSC "NC" KTZ "with IT platforms SRC MF RK

- A draft action plan has been developed for the interaction of the SRC systems of the Ministry of Finance of the Republic of Kazakhstan and JSC "KTZ-Freight Transportation"
- Eliminated problematic points of transferring DI from the ACS of the CCW to Astana-1 for the automatic generation of a customs declaration

Scheme of the transportation process along the pilot route Karaganda - Poti



Art. dispatch
KTZ Express
(AIRFT, Invoice, TDF, SP)

5 days

ACS CCW

Aktau port
AIRFT, bill of lading, manifesto)

1 day

Solvo.tos.

KMTF
(AIRFT, bill of lading, manifesto)

2 days

no ACS

Port of Baku
AIRFT, bill of lading, manifesto)

1 day

Port Management Information System (PMIS)

ADY Container
((AIRFT, Invoice, TDF, SP)

1 day

IMSART

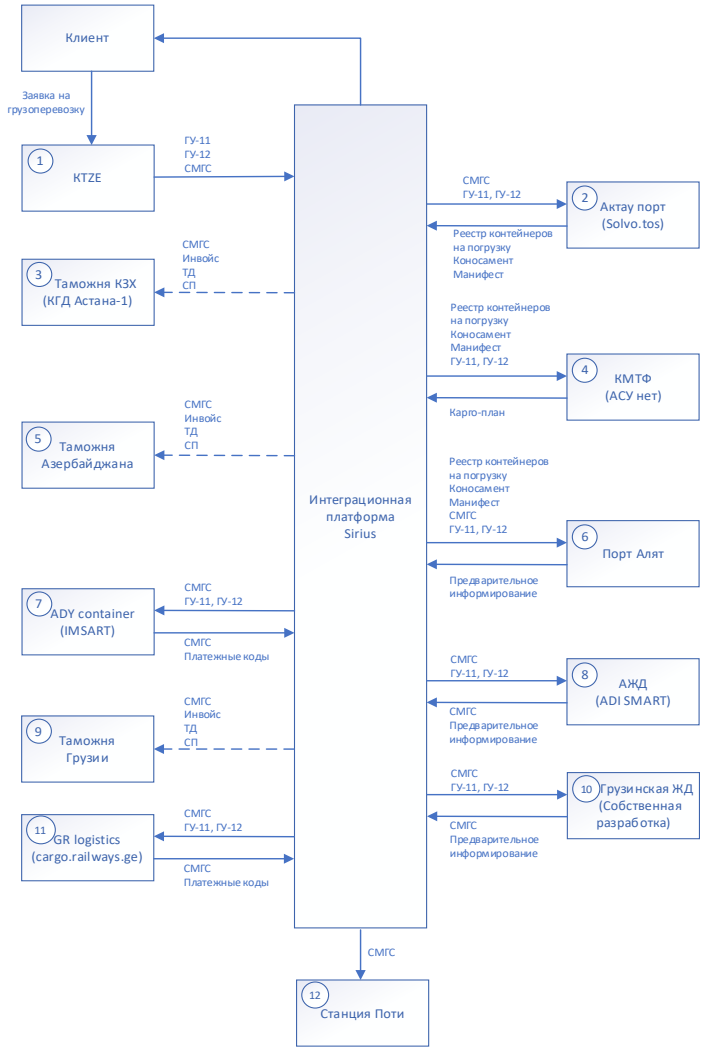
Art. destination
GR logistics
((AIRFT, Invoice, TDF, SP)

2 days

LK in cargo.railways.ge

Shipper: "YDD Corporation "LLP
Forwarder: KTZE (RK)
Forwarding territory: KZ - Azerbaijan - Georgia
Travel time: from 12 days
Preliminary number of integration points: eleven
Of these, customs - 4

Integration of the participants of the pilot route



1. The client, represented by the shipper, concludes an agreement with KTZ Express for shipping. KTZ Express creates plans for the transportation of GU-11 and GU-12, after which these data from the ACS of the DKR through the ACS Mesplan transferred to other railway administrations and Sirius. Sirius notifies ports and freight forwarders about plans for cargo transportation.

2. After that JSC "KTZ Express"Creates an invoice in the ACS CCW and sends payment codes from ADI Container and GR Logistics.

3. Sirius receives a consignment note in the form of AIRFT. Saves documents in secure storageWallet and register documents in a distributed ledger.

4. AT Sirius a clock generator is started, according to which documents are sent to other participants in the transportation process. The sequence of sending documents is indicated on the general scheme of interaction.

5. Upon receipt of an invoice from other participants in the process Sirius checks the validity and integrity of documents according to previously entered documents. If the check is not passed, the participant's ACS will be notified of this, and the chain of transmission of documents will be interrupted until the correct documents are received.

6. The life cycle of the cargo ends at Poti station with the last transfer of documents.

7. At any stage of the life cycle, the client can check the status of the cargo and at what stage it is.

Integration options for route participants

Web services by protocol SOAP

Consistent XML data structure passed by the web service described in XSD

Currently, not all participants have a consistent data structure

Scanned copies of the original document

The participant scans the originals of the documents that he forms and sends them using a specialized web application. Another participant receives them using the same web application.

Web form

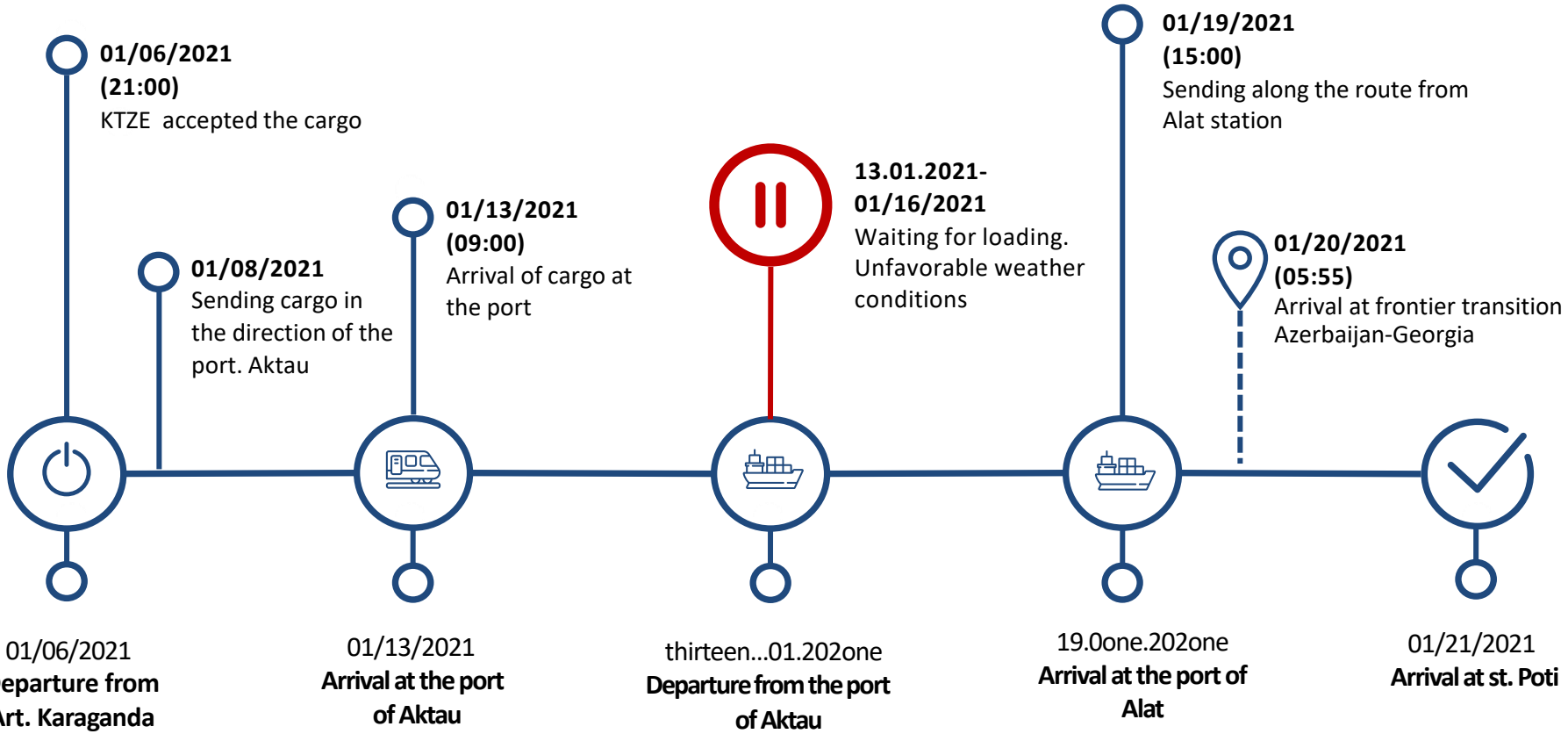
A participant to send data opens specialized web forms, fills them in and thereby sends data to other participants in the interaction

Participants will have to do double work, fill in the data in their ACS, and then manually fill in the same data in web forms

Test shipment # 1 along the pilot route Karaganda - Poti using Blockchain. " Consignor YDD corp. "LLP

Ferroalloys transportation in the direction of Karaganda (KZ) - Poti (GR)

PLAN 12 days
FACT onefive days



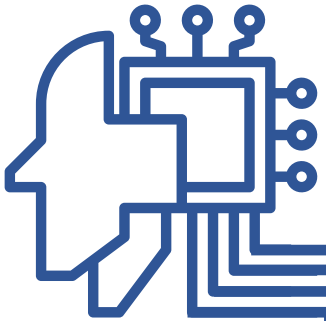
Solutions for automating manual document processing procedures

AS IS

The current process of operators of transport companies, carrying out the processing of primary documentation

1 hour

1. Paper invoice
2. Manual translation
3. Manual typing into a form
4. Fixing the invoice in ACS DKR



Application AI (Artificial Intelligence) for document classification and recognition of the required content, with the possibility of continuous learning

Key features

- Scanning Documents and Displaying Them
- Content recognition
- Correction and adjustment
- Smart presentation
- Monitoring and control

Benefits

- Prompt implementation
- Continuous learning
- Flexibility
- Predicted accuracy

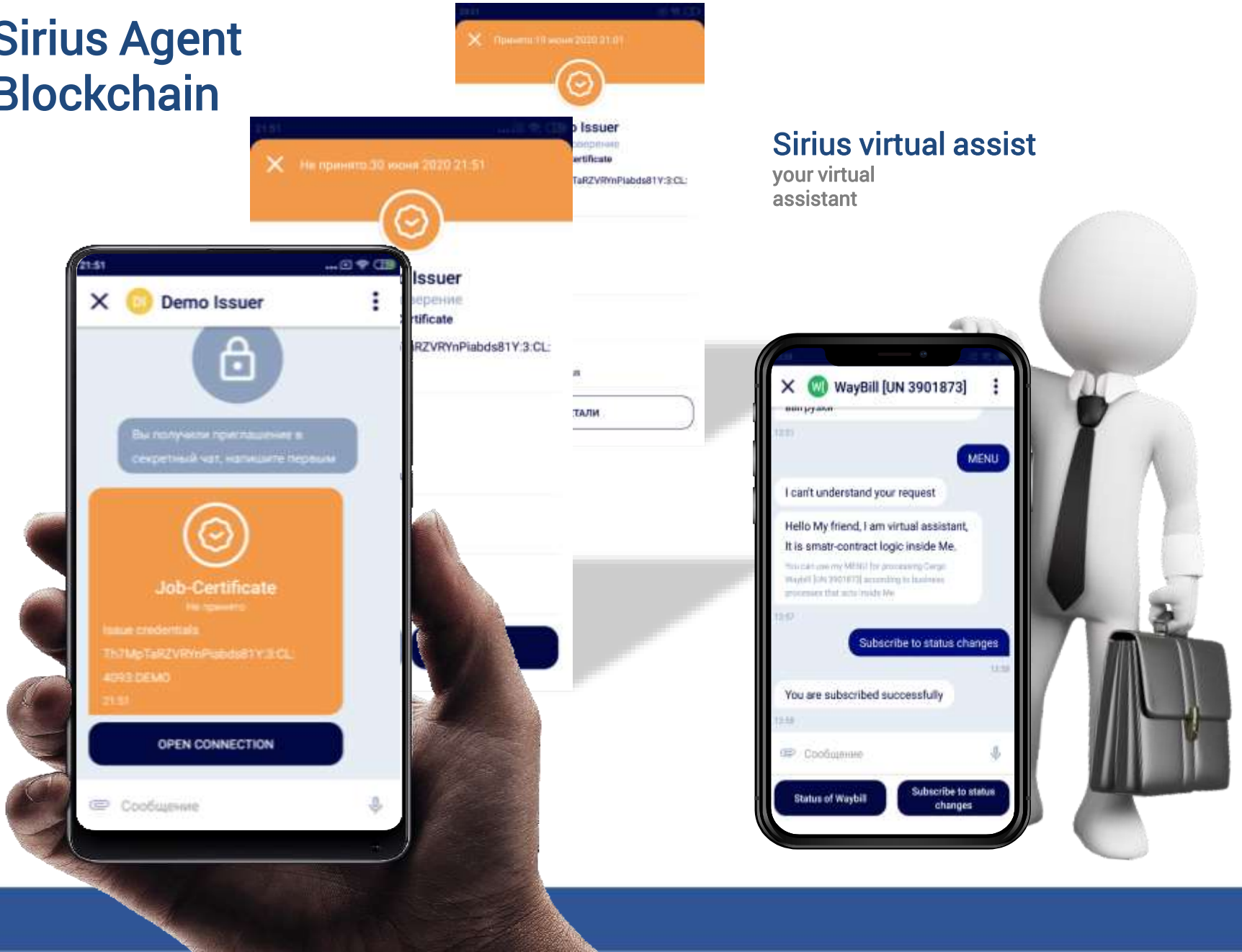
Optimization of operators' labor costs, allowing to reduce the number of errors in the processing of primary documentation

TO BE

~ 1 min

1. Paper invoice
2. Scanning
3. Loading scanned copies to the information system
4. Automated recognition and translation
5. Automatic fixing of the waybill in the ACS DKR

Sirius Agent Blockchain



Sirius virtual assist

your virtual assistant

Language /language

Eng

Rus

Fra

Pol

Қаz

ქრუ

BUTzə

Data acquisition process

Step 01
Retrieving data (scanning)

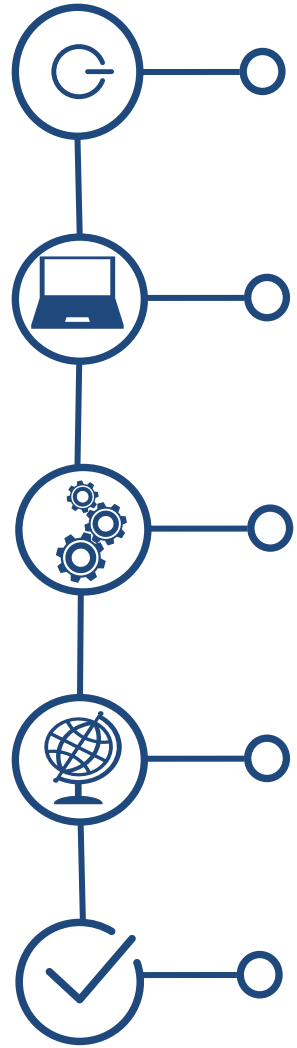
Step 02
Graphics processing

Step 03
Optical character recognition (OCR)

Step 04
Extracting information

Step 05
Additional training

Transition to pilot production



03/16/2021

The decision of the general meeting of TCIT on the possibility of transition to pilot operation

20.03. - 30.06.2021

Phase 1 - integration
Integration ACS members of TCIT and ITTC countries Azerbaijan - Georgia - Kazakhstan

01.07. - 10/30/2021

Phase 2 - pilot testing
Conducting all shipments of certain (TOP-20) shippers along the KZH - Georgia route and back using Sirius Block chain

10/01/2021 - 10/30/2022

Phase 3 - creation of a unified digital corridor of TCIT
Expansion of coverage Sirius Blockchain
for all TCIT participants

11/01/2022

The decision of the general meeting of TCIT to launch the system Sirius Blockchain into industrial operation

Implementation TCIT digital corridor systems