



Seminar for the Promotion of Electronic Exchange of Customs Information and the
Adoption of Standard Electronic Messages
Geneva, Switzerland, 20 - 21 June 2016

Customs-to Customs (C2C) Electronic Information Exchange for Transit



Georgia – Turkey



Project Status (Georgia) Central Exchange Platform (CEP)

UNDA project 1213AA / UNECE sub-project

“Strengthening the Capacities of Developing Countries and Countries with Economies in Transition to Facilitate Legitimate Border Crossing, Regional Cooperation and Integration”

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In cooperation with



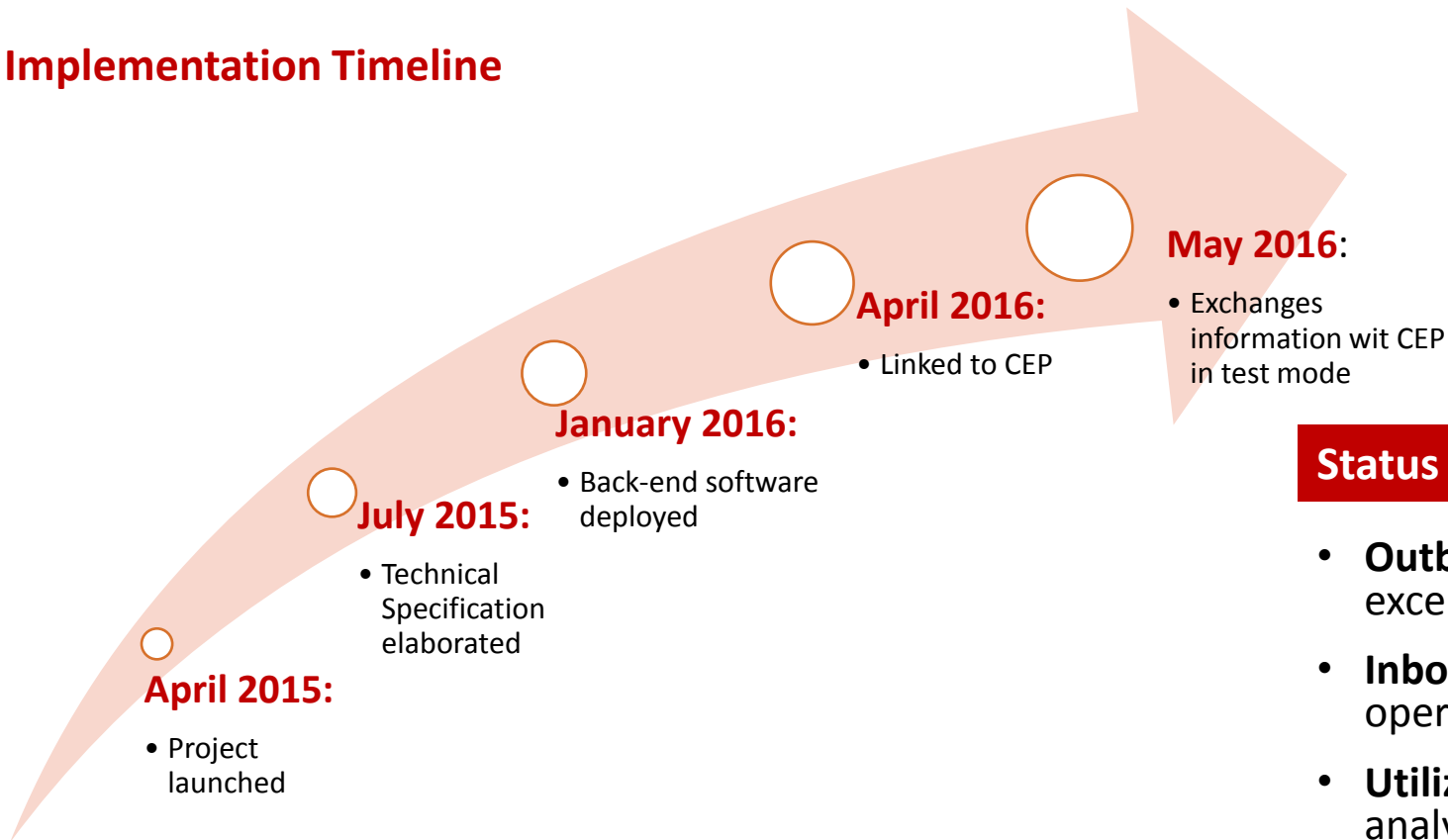
Georgia – Turkey Pilot Project

Brief Status: Georgian Customs

Project Status

- Since May 2016, the software is fully operational, hosted by the infrastructure of the Revenues Service of Georgia, working in the test mode and contributing for operational testing of the Central Exchange Platform (CEP)

Implementation Timeline



Status

- **Outbound messages:** sending, analyzing exceptions, improving operational practice
- **Inbound messages:** tested on test data sets, not operational so far
- **Utilization of information:** interim interfaces, analyzing outbound data sets, waiting for inbound information

Limitations

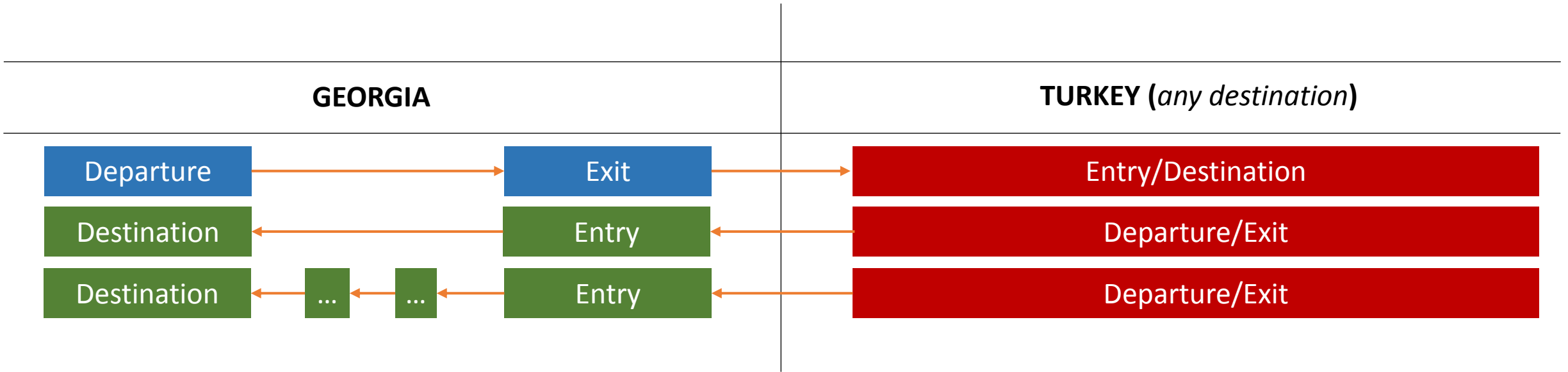
- Messages are structures according current capabilities of Georgian Customs (data, operations)
- Data sets, structure of information and sequence of underlying operations/documents partially differ from the sequence as required by the eTIR, but comparable to enable exchange of information
- The secondary sources of information are used (export declaration, T1)
- Technically, the data exchange is organized in the way, allowing gradual improvement/switch to other sources of information without interventions in the data exchange interfaces.

Messages

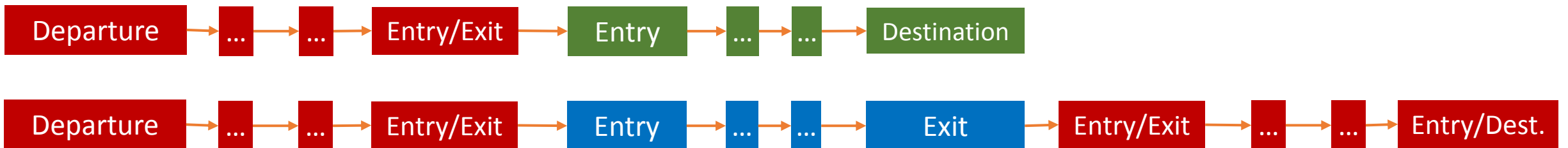
No. (eTIR Ref. Model)	Description	Limitations	Status (As of date of Report)
I5	Query guarantee	No limitations	Implemented, but tested using the test data (no operational testing)
I6	Query results		
I7	Record Advance Cargo Information	Triggered by export declaration, cannot provide route information	Implemented and tested in operational setting
I8	Record Advance Cargo Information results		
I9	Start TIR operation	Triggered by internal transit operations (T1)	Implemented and tested in operational setting
I10	Start results		
I11	Terminate TIR operation	Triggered by internal transit operations (T1)	Implemented and tested in operational setting
I12	Termination results		
I13	Discharge TIR operation	Triggered by closing internal transit documents	Implemented and tested in operational setting
I14	Discharge results		
I15	Notify Customs	Receives without limitations	Implemented, but tested using the test data (no operational testing)
I16	Notification confirmation		

Flow of Operations (Scenarios)

Georgia is capable to process:



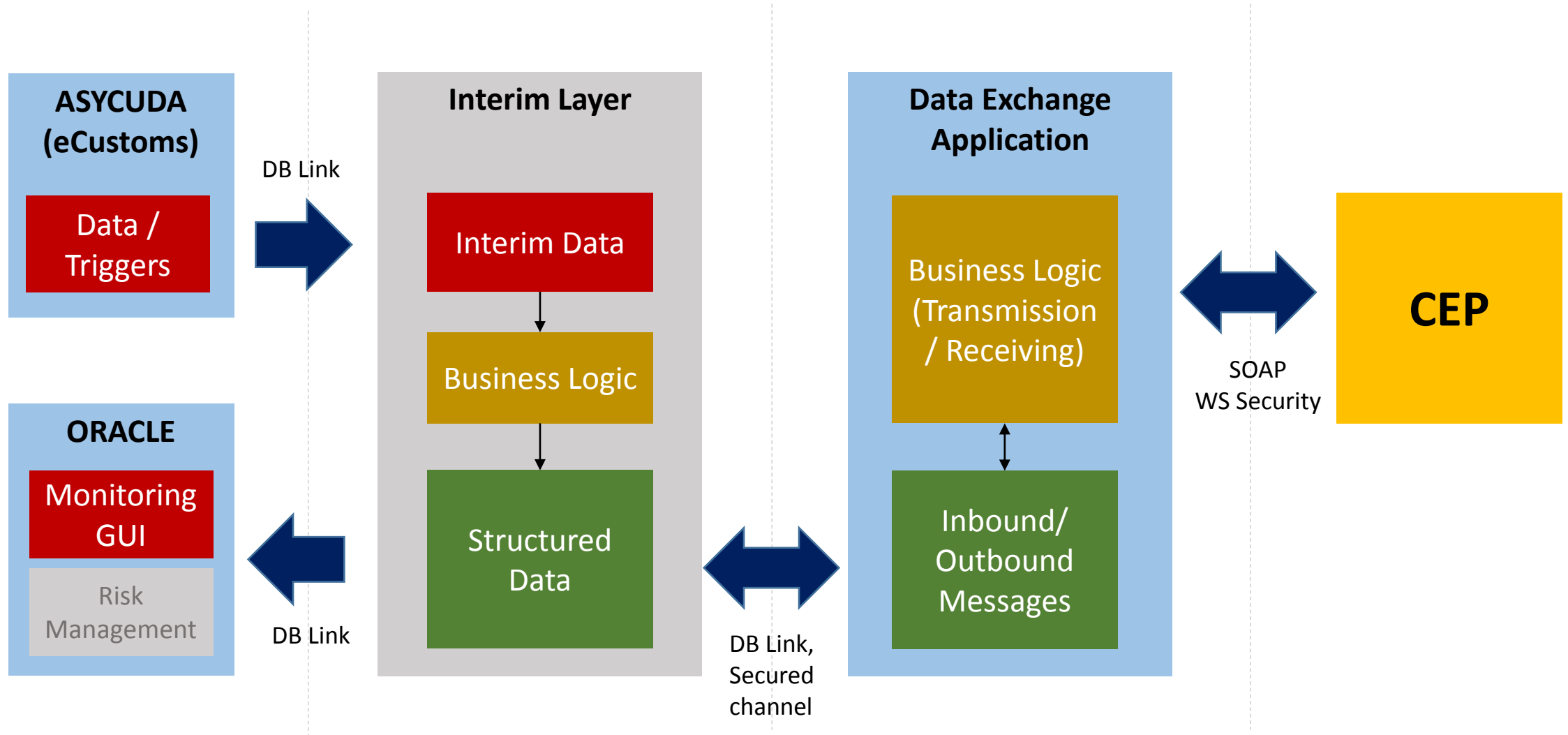
As well as:



**If route is not changed*

High Level Architecture

The architecture is flexible enough to enhance the system in the future



Next Steps

- **Integration and utilization**

- Monitoring of information implemented. Decision on future integration will be made and integration implemented by Georgian Customs

- **Transition to full data set and original flow of operations**

- Switch to original sources of information, ensure completeness of data sets and implementation of original flow of operations

- **Transition to full eTIR Model**

- Enhance the structure of the database in accordance with the eTIR Reference Model requirements in the future, when needs for such enhancement will be raised, as well as completeness of information will enable implementation of such exercise

Central Exchange Platform (CEP)

Brief overview of Capabilities

What is CEP?

CEP is a secure **C2C electronic exchange platform**, taking due account of the specific challenges faced by developing countries and countries with economies in transition

- Based on **eTIR Reference Model** v.4.1a, **WCO data model** v.3.5 and taking into account the overall structure of the WCO transit data model
- Taking into account the availability of **data** that **pilot countries** will be exchanging and National **procedures**
- Hosted and managed by the IT centre of the **UN Office** at Geneva

Project Status

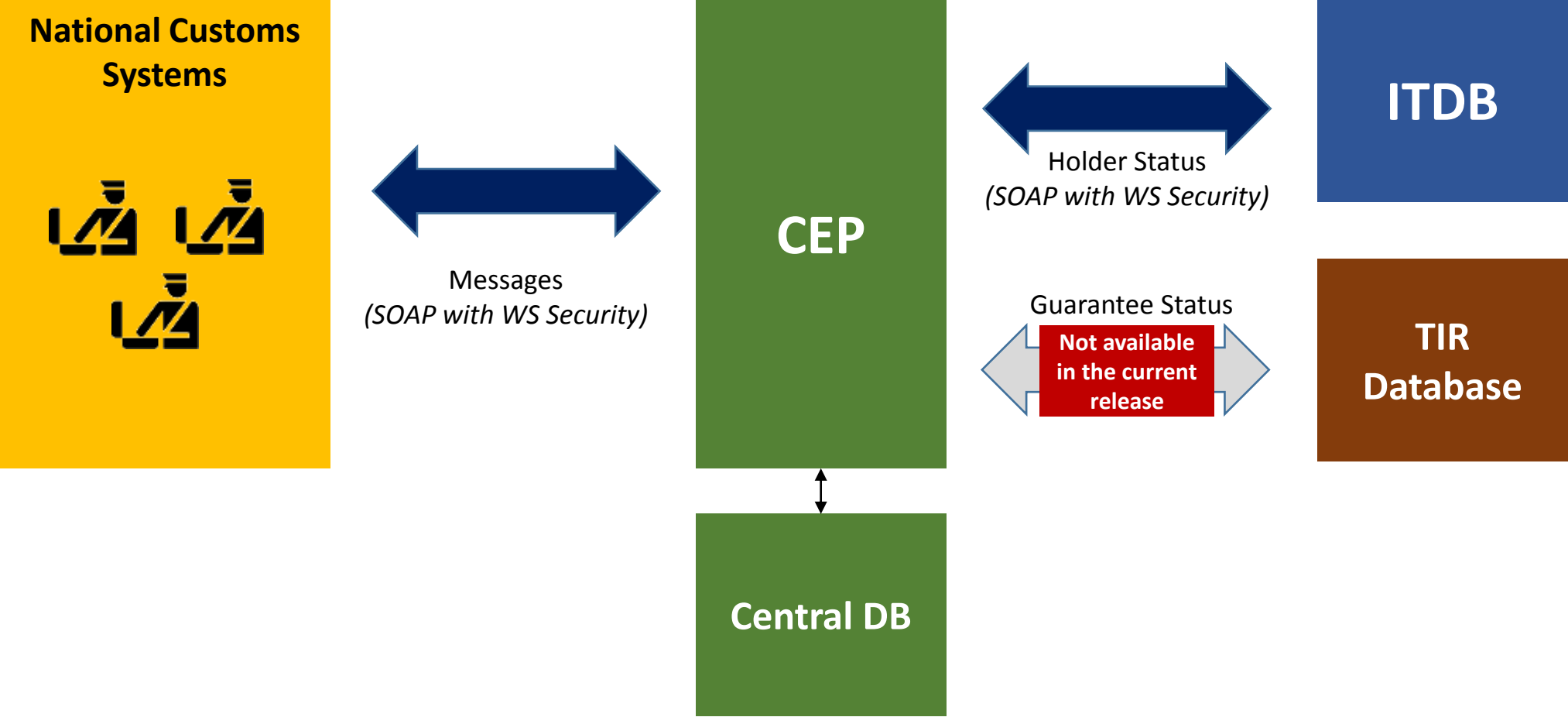
- Since May 2016, the platform is fully operational, hosted by the infrastructure of the UN Office, and working in test mode
- Georgia Customs is linked
- Ongoing activities
 - Exchange of information with Turkish Customs in progress
 - Operational testing / monitoring / improvements
 - Development of reporting capabilities

The Actors

- The Customs Authorities of Countries Participants of the Project – Georgia and Turkey
- UNECE/TIR secretariat by the means of hosting of the Central Exchange Platform and ensuring security and confidentiality of the data received
- ITDB

- The CEP potentially supports any number of System Agents of National Customs Authorities
- The process of new system agent addition to the CEP is developed in a way that it would require no serious manipulations
- Actually the process of adding new agent consists of adding new record in a special table and registering of certificate which is generated and sent by agent in CEP's keys store.

High Level Architecture



Implemented Messages

Six C2C messages are available (in accordance with requirements of the eTIR Reference Model v.4.1a)

1. I5 – I6: Query Guarantee
2. I7 - I8: Record Advance Cargo Information
3. I9 - I10: Start TIR Operation
4. I11 – I12: Terminate TIR Operation
5. I13 – I14: Discharge TIR Operation
6. I15 – I16: Notify Customs

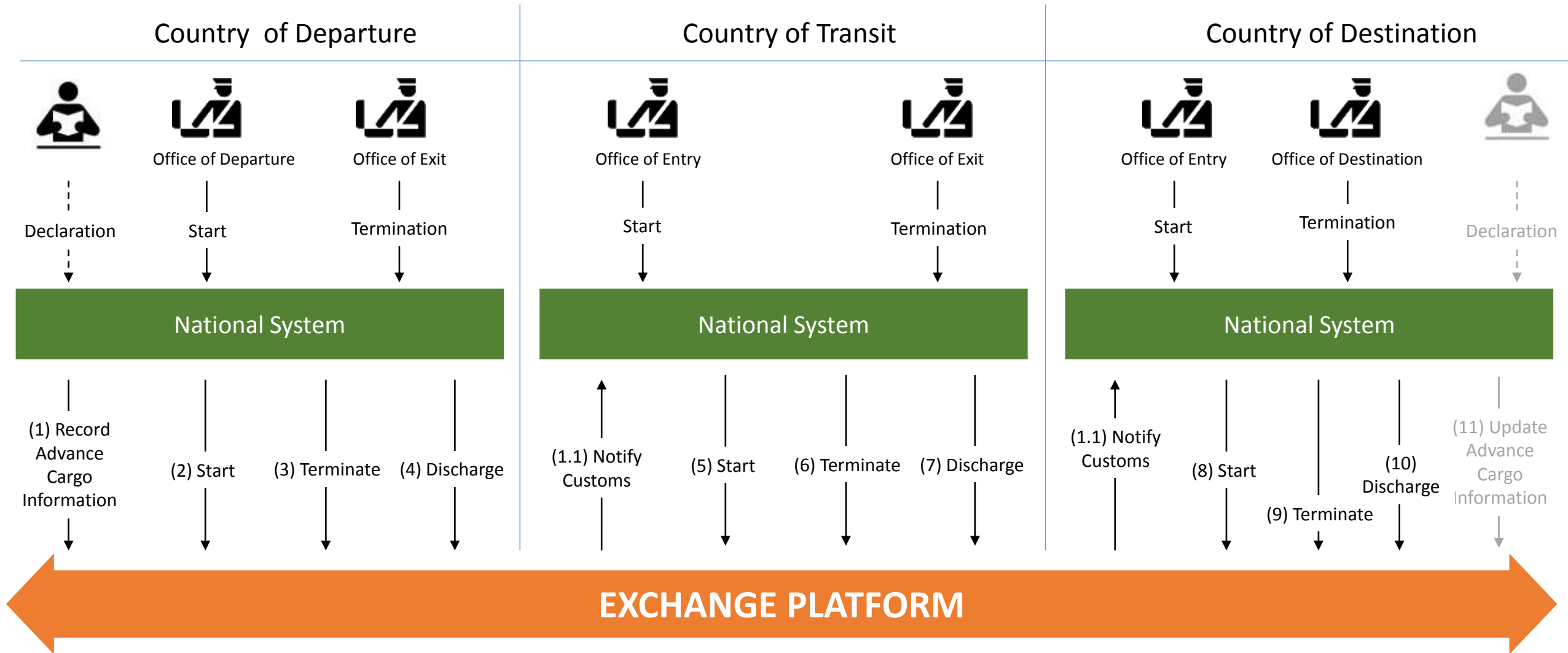
Capabilities

- CEP platform's interface is designed as simple as possible to deliver potentially any type of document (message) to the Central Exchange Platform and then to the appropriate system agent(s) used by the National Customs Authorities
- CEP Web Service requires the message to have three parameters:
 - Identifier of National Customs Authority system agent posting the message;
 - Type of the message, which is supported by the CEP;
 - Message content.

Such simple and straightforward interface does not straightly tight CEP platform to any type of document. Currently CEP platform implements only XML documents based on eTIR Reference Model - Version 4.1a XML schemas (http://www.unece.org/trans/bcf/etir/xml_schemas.html), but potentially other messages support could be added without changing CEP principles and interface.

Exchange Platform in Action (eTIR Model)

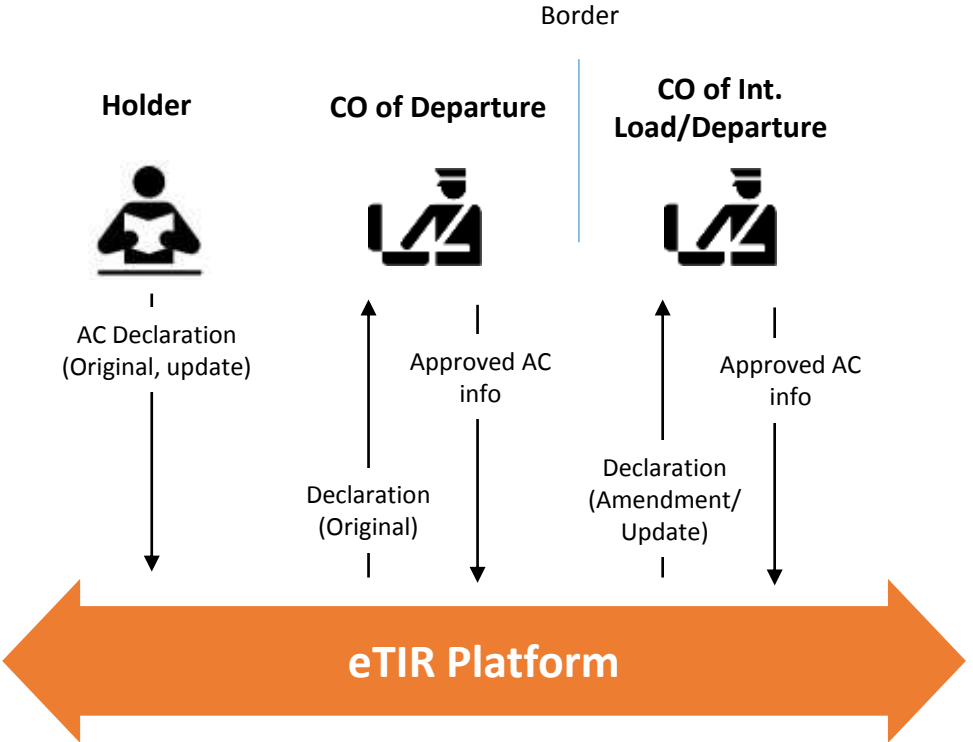
But not so simple as seen... Intermediate loads and unloads are matter



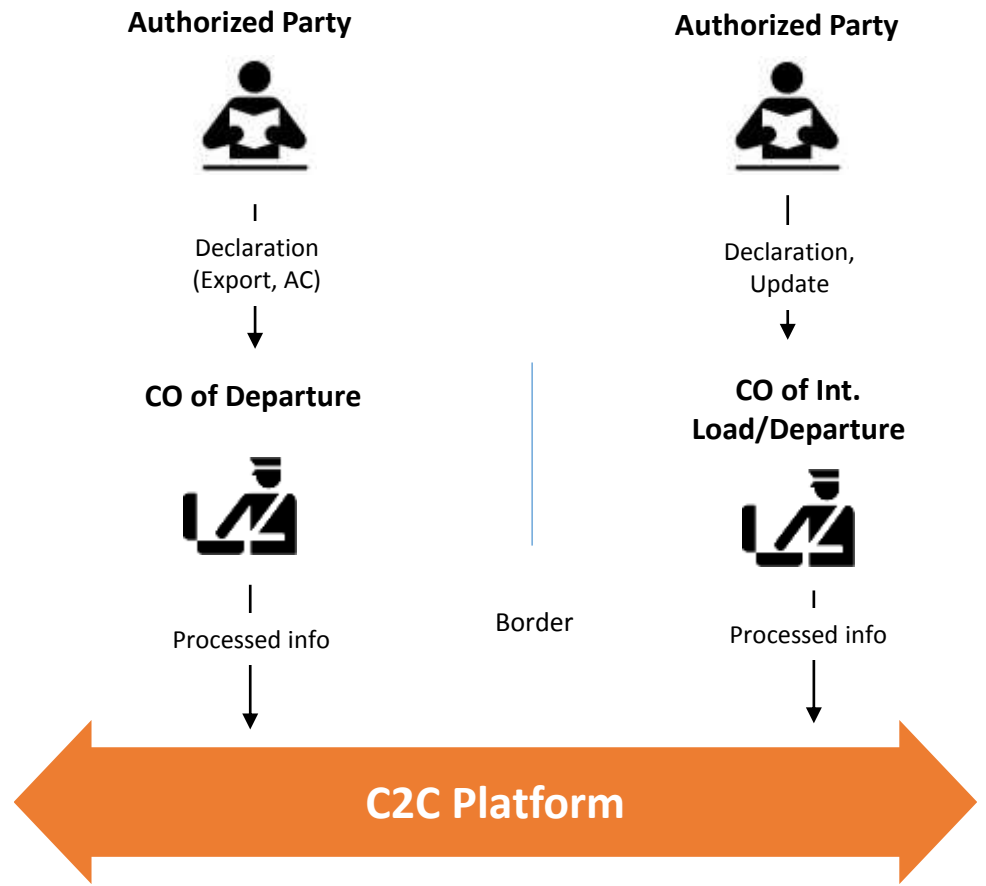
C2C Platform vs. eTIR Model

Flow of Information

eTIR Model (fragment)



C2C Model (fragment)



Validation of Messages

- Sequence is built around the TIR Guarantee
- Only TIR Guarantee number and structure of message are strictly validated
- Possibility to configure separate incoming messages validation rules for each type of incoming XML message
- Possibility to configure different validation rules for each specific National Customs Authority system agent in case of necessity

Message validation rules are configured via special XML document called as Message Descriptor. Message descriptor defines entire structure of the incoming message (document) and can define validation rule(s) for any node.

The flexible validation architecture of the CEP gives the possibility to extend a list of already available types of validations with any number of new types. This can be achieved without changing Message Descriptor format or validation architecture core.

Methods

- The CEP considers availability of both PULL and PUSH outgoing message communication mechanisms
- The message communication mechanism can be chosen by the System Agents of National Customs Authorities depending on the System Agent requirements

Georgia: PULL is selected
Turkey: PUSH is selected

Security

- Messages transmitted between CEP and System Agents of National Customs Authorities integrated with the CEP are signed and encrypted to ensure messages integrity and confidentiality
- Web Services Security (WS-Security, WSS) SOAP extension was chosen for that purpose
- CEP and participating Agents have their own pair of public and private keys
- All public keys (certificated) will be available to all parties of the system in order to verify message signatures and to perform data encryption

WS-Security is a member of the Web service specifications and was published by OASIS. Its main focus is the use of XML Signature and XML Encryption to provide end-to-end security

To maximally simplify agents integration process WS-SecurityPolicy specification is used to define WS-Security requirements, which are directly embedded into WSDL

Data Sets

- Covers and processes full set of data according to eTIR reference Model v.4.1.
- Currently allows processing of incomplete data: allows circulation and storage of subsets of messages as well as complete eTIR messages based on configuration

The CEP is assumed to enable full set of information as defined by the eTIR reference model in order to enable both extension of scope by participants of the current project in the future and smooth involvement of other countries in the project.

Configurability

- Capability to configure separate validation rules for each type of incoming XML messages and individually for each Agent
- PUSH and PULL methods are also subject of configuration for each particular Agent

Acknowledgement: We Appreciate

- **UNECE/Transport Division**, and especially Mr. Andre Sceia for supporting and encouragement of the project
- The teams of **Revenue Service of Georgia** and **Turkish Ministry of Customs and Trade** for active engagement in the project

Thank You for Attention!
Questions?



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