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**Review of the Bureau and Regional Rapporteurs' activities since the twenty-ninth Plenary  
White papers for information****White Paper on Gaps in Aligning Digitization with  
Transit Procedures****Submitted by the Bureau***Summary*

This white paper looks into the transit formalities for specific products, namely product specific documentation issued by government authorities, using as example sanitary, plant and veterinary control certificates, CITES permits, and Waste certificates.

It is aimed to will capture documentation requirements for consignments in transit of specific products, identify legal and operational challenges faced by digital trade documents for transit formalities and discuss opportunities and limitations of technological aspects of digital data exchange.

It borrows from recent discussions in other UN/CEFACT domains and projects with regards to decentralized digital data exchange platforms, track, and trace of shipments, and IoT standards.

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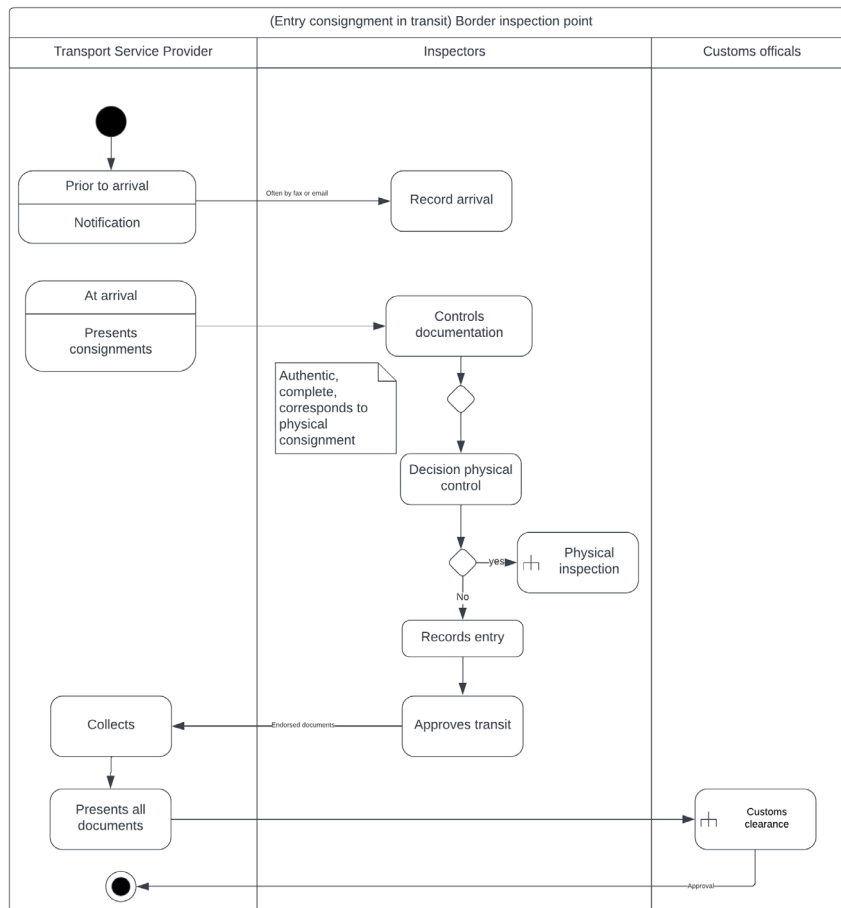


## National regulations

Consignments in transit must conform to national laws and must be controlled and approved at arrival at border crossing points by the competent authorities. Formalities may include prior notification of arrival, presentation and declaration of the goods and documents, and product specific control measures. Typically, if the goods in transit are regulated items such as plants, animals, waste the respective (cope of) official certificates issued by the authority of the exporting country needs to be presented<sup>5</sup>.

## Border crossing procedures

At border inspection points, government services<sup>6</sup> control and approve transit consignments. The formalities foremost consist of documentary control but may even include physical control of the consignment. However, control measures should be decided based on a risk assessment for the specific consignment and should be limited to consignments representing a risk (e.g as defined by ISPM 25). In this process there is a requirement that authorities from a transit country need view the transit accompanying documents or to receive a proof of issuance of such documents. The diagram below depicts a generic workflow at a border inspection point.



<sup>5</sup> For other products, namely live animals and dual-use items national transit permits may also need to be applied prior to or at arrival. This is however not part of the WP

<sup>6</sup> This includes customs authorities and other inspection services or border forces. Depending on the national institutional set up controls may be delegated to another authority

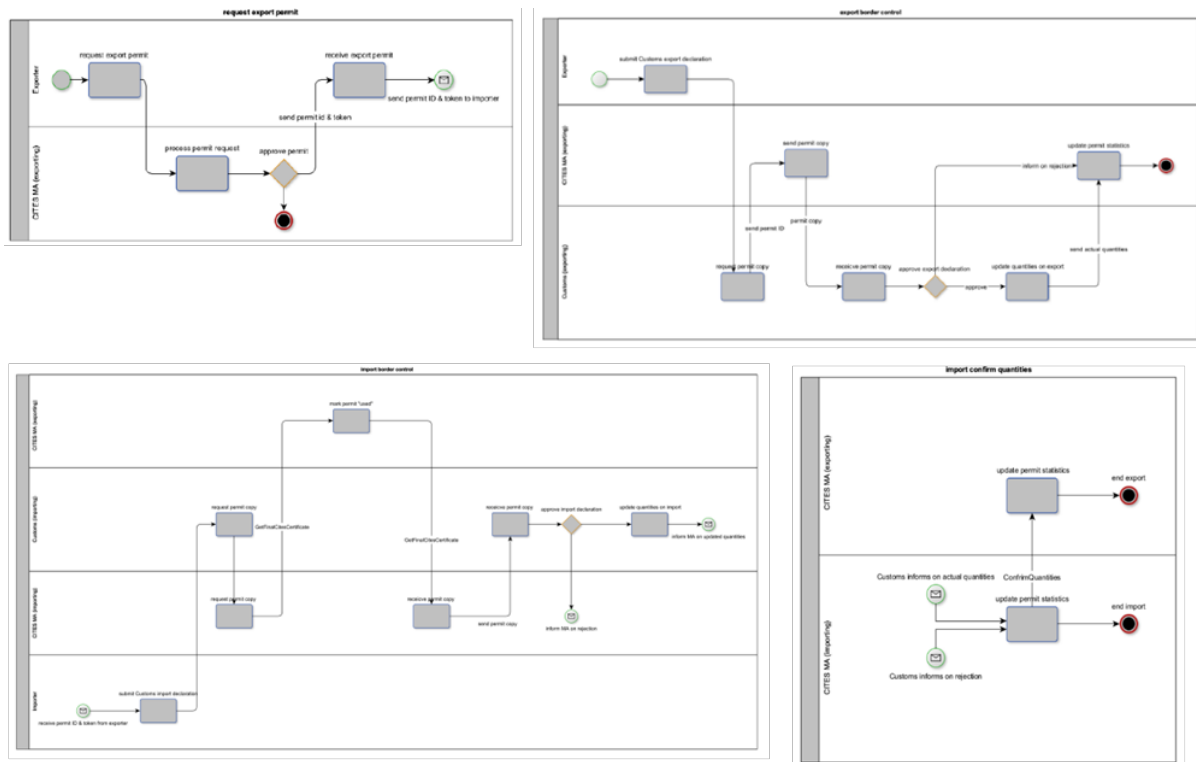








Figure 2  
Activity Diagrams of the CITES Appendix II process with electronic permit information exchange



Source: Guidelines and Specifications for Electronic Permit Information Exchange (EPIX) of CITES Permits and Certificates

## Sanitary and Phytosanitary Certificates

The (electronic) SPS certificate is a unique G2G regulatory file for single-use which is valid for a dedicated consignment for the duration from the time of issuance until completion of the documentary border control procedures by the authorities of the country of destination.

issued in paper format to the consignor or available for the consignor as a printed template, the hard copy can mostly be used by the carrier to also satisfy procedural requirements of transit countries. For border authorities the hard copy functions as physical evidence of a valid certificate for the consignment and provides at the same time opportunity for those authorities to endorse such document for transit through manually stamping and signing.

An increasing number of countries have adopted a digital SPS certificate and exchange the data with their trade partners bilaterally or through the so-called IPPC hub. Both solutions are based on the e-CERT standard. However, for the bilateral exchanges, the integration of transit authorities into the digital data exchange is not yet covered.

Some countries have implemented procedures under the umbrella of bilateral e-Cert cooperation. An example of such procedure is the use of the statement in PDF format from the issuing official body to the exporter in which the issuing body confirms the issuance of the electronic certificate for the involved consignment. The G2G certificate exchange between the exporting and importing country has now become paperless, but another (paper) document needed to be introduced to satisfy amongst others transit and/or endorsement procedures.





exporting and importing country in computer readable language<sup>8</sup> and authorities from a transit country require a copy of the exchanged document or even require the possibility to view the electronic document.

## Technological challenges

Cross-border digital B2G or G2G, or B2B data exchange commonly rests on two types of exchange architectures. Peer-to-peer architecture of bilateral exchanges and shared hub solutions. The recent UN/CEFACT WP on Verifiable Credentials summarises the advances and disadvantages as follows:

**Peer to peer architecture.** In this model, messages are exchanged over a secure pipe between two parties. This is the typical EDI model for B2B (Business-to-Business), G2G (Government to government), G2B (Government to Business) and other data exchange. The two parties exchange security tokens to identify each other and these are used to secure the physical connection. All parties are technologically mature and must make some investment to setup their connections. This model works well for high volume exchanges between a small number of parties that already know and trust each other. It is more difficult for low maturity participants and does not easily accommodate third parties that need access to the same data.

**Shared hub architecture.** In this model, all parties connect to a central data hub and exchange data with the hub. Typical examples are trade single windows or port community systems. Data exchange can be either manual (via a user interface) or automated via APIs (Application Programming Interface). In all cases, each party must register with the hub and receive an identity token. The consequence of attempting to implement a hub architecture across borders and sectors is usually a “plethora of platforms” where participants would need to pre-register with an infeasibly large number of platforms to get their job done.

The challenge of both architectures for transit consignments is that the transit authorities need to be in the same hub than the issuing and destination authority or need to have an endless number of bilateral connections. Also, hubs may be geographic or domain specific and authorities may therefore need to be connected to multiple hubs. As both solutions demand application and maintenance of certain degree of IT system at the national level it can be which can be considered costly and in this way for transit purposes only an unattractive/unacceptable investment. - See below for discussion on SW and border crossing points. Another complication of the hub solution is that routing needs to be assigned at the beginning of the journey. What happens if routing changes?

New developments discuss pull solutions that are independent on technology and on hub or architecture. In such scenario, the challenge is to control and record access to the data and to add annotation to status is often limited. Another problem is that not only issued certificates, but actual exit confirmation needs to be shown – latest status of the certificate, that might be already exchanged G2G)

Authorities in many countries have added two-dimensional barcodes or QR codes to the printout version of their documents. Such barcodes and QR codes can be read by portable data-reading devices, such as scanners or mobile phones that automatically scan, capture, and transmit that information to a computer system. But as mentioned above, these codes

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<sup>8</sup> (using Electronic SPS certificate eCert)

may only give access to the originally data and cannot account for changes and annotations, may only show a reduced data set, such as date of validity, and or provides only restricted access. There are also issues of without proper authentication of the source and prove of integrity a QR code will not remove the requirement for paper en route.

### Operational challenges

Another complicating factor is that the control and entry approvals is carried out at border crossing points. These border crossings points are not necessarily all integrated into central IT architectures of government agencies and have access to the national IT systems to view the respective digital data. Single windows for example, which at least in theory, could hold all trade relevant data, are often not accessible at border points and only few single windows are integrated into a digital data exchange with foreign partners.

Often, government officials not only control the documents, but give their approval by way of stamping or signing the paper-based original or copy of the certificate. The physical proof of approval by the authorized authority may be needed for Customs officials to release the consignment officials at exit points to close the transit procedure. A digital document therefore needs to be tracked across the entire transit and be able to record approvals as events.

A characteristic of transport and logistical especially in transport on land however (compared to air and sea) is unpredictability of the route (except for the train maybe) and as a consequence a lack of knowledge with whom, where and when to share what information. This requires a flexibility for data sharing which need to be taken very seriously into account. This constitutes a challenge for a technological solution that need a predictable environment to function properly.

Officials controlling transit consignments need to relate the actual goods (trade items) with the documentation, with the means and assets of transport. Trade documents are issued for specific goods constituting a specific consignment. Certificates contain an identifier for the means of transport which is sealed by the authorities and the seal number annotated on the paper version of the certificate and verified again at exit from the territory. Transforming these physical linkages to a digital word is a challenge, in particular when goods are transhipped or consolidated.

All the above challenges explain the strong position of the use of hard copies of the trade documents for transit consignments. Application of paper continues to be simple and the use of a printed version of a pdf does not require any national system. This however constitutes a gap in paperless cross-border trade.

### Readiness of International Technical Standards in Enabling the Routing of Digital Documents to Transit Countries

The digital transformation throughout the journey requires that the international technical specifications such as data models, unique/universal identify and routing address for authorities of transit countries and etc should also take into account the provision for routing of Digital Document and relevant status messages to Transit Countries, that includes the tracking of approval statuses at every transit point.

In section “Annex 2-Transit related data elements in International Data Models” contained the list of data elements related to transit countries in UN/CEFACT Reference Data Model’s Supply Chain Reference Data Model Core Component Library (CCL) version D22A and WCO Data Model Version 4.0.0 Final Library. However, these data elements are insufficient for the computing system that generates the digital document to identify the routing address/path of the Transit Countries’ IT systems for transmission of the digitally generated documents. Similar situation occurs in the other digitized documents such as:

- EU Certificate of Origin
- EU Certificate of Conformity
- Codex generic model official certificate
- ePhyto (IPPC phytosanitary certificates)
- WOH international veterinary certificates

## 5. Conclusions and Possible Ways Forward

This WP is concerned about the impact of the digitalisation of regulatory documents and the possibilities for their digital data exchange for consignments in transit. It notes that international agreements regulating cross-border movement of animals, plants, plant and animal products, endangered species and hazardous waste and pesticides, contain procedures for consignments in transit. It furthermore notes that efforts are undertaken to digitalise the related documentation and country-to-country notification requirements. Nevertheless, transit authorities at border inspection points continue to require the presentation of paper-based documents, foremost the originals, or pdf versions. It noted that this mainly a response to legal framework, and operational and technological challenges that restrict access to digital data, limits its usability for the control purposes of transit authorities.

As digitalisation efforts are still at a developing stage and will evolve and learn from past experiences, this WP urges regulators and standard setting bodies to look into the challenges of paperless control of transit consignments. In the absence of the above, the risk to breaking the cross-border paperless chain is high if authorities need to continue to issue hard copies of official certificates despite having agreed on electronic transmission to the authority of the destination. In addition, access to data on transit consignments will enable and strengthen the risk assessment abilities of the competent government authorities.

- A. It is recommended that the definition of the data elements by the respective international organisations become harmonized for transit requirements and that the data elements are aligned to international standards, such as UN/CEFACT BSP RDM and CCL. Recent additions to the UN/CEFACT CCL for the smart container and track and trace work may prove important for transit consignments as they allow to record product and transport specific events and locations. Nevertheless, it would be useful to consider the possibility to define a minimum data set that can be accepted by authorities for transit consignments as proof of certification or as equivalent of the paper documents.
- B. The international organizations such as IPPC, CITES, and etc to review the Business Requirements Specifications (BRS) and electronic message









### Institutional Structure

