International Standard

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Transaction assurance in E-commerce — Guidelines on sharing goods quality assurance traceability information in E-commerce supply chains

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Assurance des transactions de commerce électronique — Lignes directrices relatives au partage des informations concernant l'assurance qualité et à la traçabilité des marchandises dans les chaînes d'approvisionnement du commerce électronique

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 321, *Transaction assurance in E-commerce.*

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

E-commerce has evolved rapidly and flourished globally in recent years. Due to its global and complex supply chains, it brings new challenges to goods quality compliance, anti-counterfeiting, goods recalls and more. As such, buyers, E-commerce platform operators and government agencies, etc., increasingly demand clarity about goods in E-commerce supply chains. The increasing global demand for both proven goods compliance and greater transparency on goods information provenance is best supported by establishing suitable goods traceability and linking appropriate quality assurance information throughout the supply chain.

A shared view of traceability and related goods quality information can provide reliable and sufficient information about the goods quality statements to all relevant participants of E-commerce. Buyers can be enabled to make better informed consumption choices. E-commerce platforms operators, government agencies and other relevant stakeholders can be empowered to better manage goods quality risks.

NOTE   For the purposes of the complete coverage of the activities of traceability information sharing, this document includes some participants that are not mentioned within ISO 32111, such as regulatory agencies, quality service providers and customs brokers, etc.

This document focuses on the general process of sharing traceability information related to goods quality assurance in E-commerce. This document makes reference to existing international standards for data models and means of data sharing. To establish effective and resilient traceability in E-commerce supply chains for quality assurance, the specific requirements for data capture and data sharing are developed by consensus with agreed terminology and methodology.

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Transaction assurance in E-commerce — Guidelines on sharing goods quality assurance traceability information in E-commerce supply chains

1 Scope

This document provides guidelines for sharing traceability information related to goods quality assurance in E-commerce.

This document illustrates the generic process for establishing traceability for goods quality assurance, addresses critical tracking events (CTEs) and key traceability information in the E-commerce context and provides methods for sharing the collected traceability information.

This document is intended to be applied to E-commerce supply chains only.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 32110, *Transaction assurance in E-commerce — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 32110 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
goods quality statement
statement that declares that the quality of goods conforms with specific requirements

3.2
traceability
ability to either trace or track, or both, the history, application, or location of an object in the supply chain

[SOURCE: ISO 9000:2015, 3.6.13, modified — "either … or track, or both," and "in the supply chain" added, notes to entry removed.]

3.3
critical tracking event
CTE
critical business traceability event which is the source of traceability data

3.4
identifier
ID
unambiguous, unique and linguistically neutral value resulting from the application of a rule-based identification process

Note 1 to entry: Identifiers shall be unique within one identification scheme. In case of more than one applied identification scheme, linkages between the identifiers should be created. More details are discussed within 7.4.

Note 2 to entry: An identifier is a linguistically independent sequence of characters capable of uniquely and permanently identifying that with which it is associated.

[SOURCE: ISO/IEC 15944-1:2011, 3.27, modified —"ID" added, Note 1 to entry modified to include information about linkages and replace "must" with "shall".]

3.5
business information entity
piece of business data or a group of pieces of business data with a unique business semantic definition

Note 1 to entry: A business information entity can contain one or more entities.

[SOURCE: ISO 15000-5:2014, 3.12, modified — The original notes to entry deleted, a new note to entry added.]

4   General principles

4.1   Principles for traceability

4.1.1   General

Adherence to the basic principles of traceability in 4.1.2 to 4.1.6 can assist participants to obtain precise and sufficient information about goods quality statement(s).

4.1.2   Compliance

Collection, retention, use and sharing of traceability data should fulfil considerations of all applicable requirements.

4.1.3   Transparency

The traceability data should be enabled, open, comprehensive and in an understandable format for all participants.

4.1.4   Pre-defined traceability

The criteria, methods and procedures for the implementation of traceability should be agreed upon and communicated amongst traceability participants to ensure the accurate and timely collection, recording and sharing of necessary information.

4.1.5   Unambiguous identification

All traceable objects should be identified uniquely and permanently to provide certainty and precision for traceability.

The identifiers of these traceable objects should provide necessary references to each other to establish traceability chain.

4.1.6 Competent documentation and recording

All information related to significant traceability events and verification of the quality statement should be recorded according to agreed rules and procedures.

4.1.7 Sustainability aspects

Should sustainability related concerns, such as carbon emissions associated with the logistics process, recycling of the goods or goods materials, be considered, related information should be taken into account.

4.2 Principles for information exchange

4.2.1 General

Adherence to basic principles for information exchange in 4.2.2 to 4.2.5 can assist efficient and effective sharing of traceability information among all participants.

4.2.2 Information integrity

All information should be accurate, complete and consistent.

4.2.3 Information authenticity

All information should be verifiable and consistent with what it claims to be.

4.2.4 Information interoperability

All information should be exchangeable among participants as long as they are predefined, structured and processable by applications.

4.2.5 Information scalability

The related technologies, solutions and systems should be compatible with the future change of data types, formats and granularity, applications in various scenarios, or other factors that can affect the information for exchange.

4.2.6 Information security

Requirements and procedures for accessibility, use and protection of information, as agreed among participants, should be followed in traceability implementation.

4.2.7 Privacy

Personally identifiable information for traceability purposes should be protected to avoid any unauthorized collection, use, retention or disclosure.

5 Context of supply chains in E-commerce

5.1 Overview

E-commerce supply chains mainly consist of the following key processes:

— upstream supply, in which upstream suppliers (e.g. manufacturers, distributors, wholesalers, retailers, sellers) provide goods or goods information to E-commerce operators for sale;

— goods transaction, in which buyers purchase goods from sellers via E-commerce platforms, which can involve goods information release, order placement, order confirmation, payment, etc.;

— logistics, in which logistics service providers provide transportation services for supplied goods and can include non-cross-border transportation, cross-border transportation and delivery, etc.;

— customs clearance, in which imported or exported goods are processed through customs authorities in accordance with required procedures;

NOTE   Customs clearance can involve customs declaration, inspection clearance, and dialogue with customs authorities.

— warehousing, in which either the exporting or importing country warehousing service provider, or both, store goods for transportation and can involve picking, packing, distributing, inventory management, etc.;

— after-order-placement, in which E-commerce operators provide services and supports to buyers after the order placement and can involve cancellation of orders, returns, refunds, etc.

Figure 1 provides a generic picture of the E-commerce supply chains. Different paths can be followed going from upstream to downstream in E-commerce transactions.
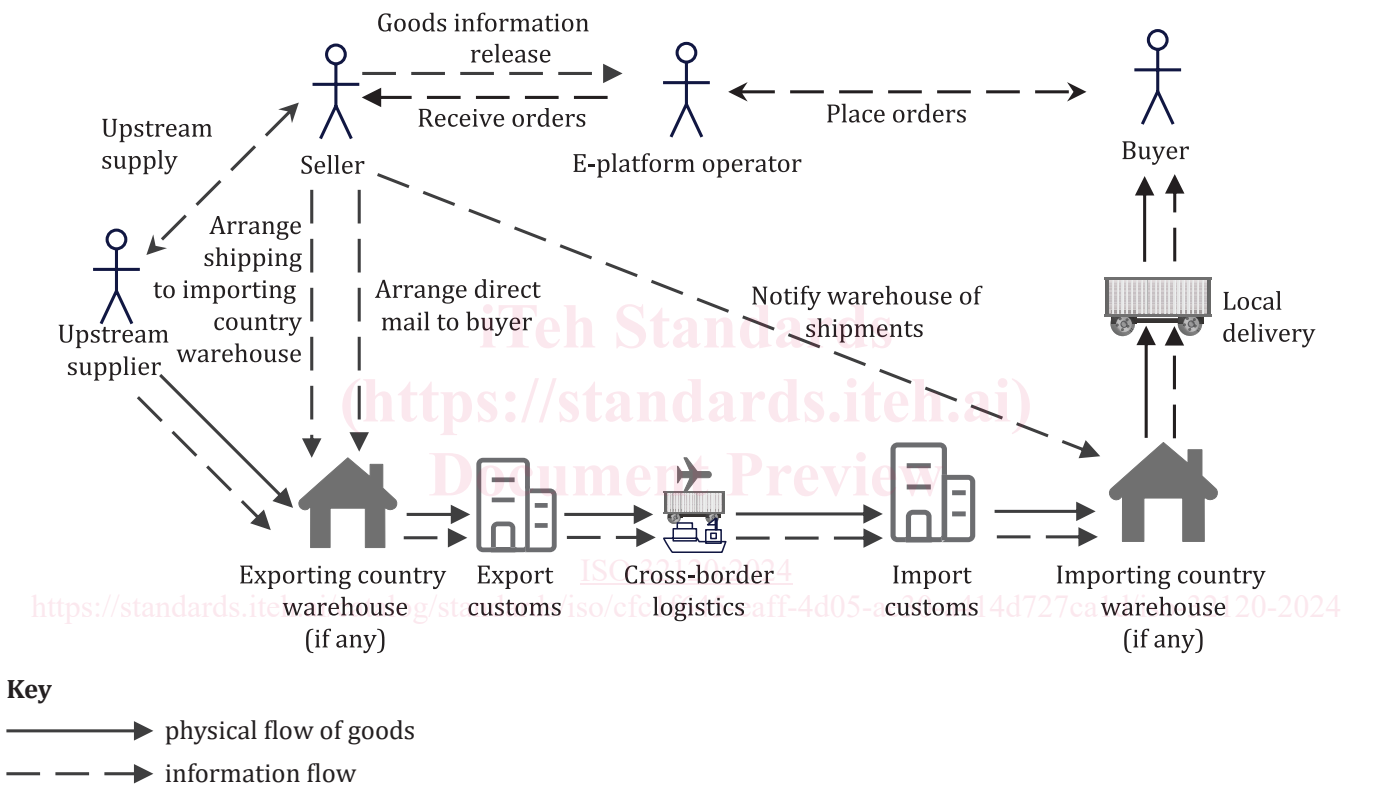

Key

⟶ physical flow of goods

— — ⟶ information flow

Figure 1 — E-commerce supply chains

Goods information is provided by upstream suppliers to E-commerce sellers, who release the information on the E-commerce platform. Buyers place orders according to the goods information released. When the order information is received by the sellers, sellers arrange the goods shipment. Depending on the availability of goods, sellers can arrange direct delivery to buyers from an exporting country or importing country warehouse, while buyers should be able to track their order information in a timely manner.

Goods are transported by the logistics service provider from upstream suppliers either to the warehouse or delivered to buyers, or both. For cross-border E-commerce, shipments should be cleared at customs before they can be delivered to buyers.

The information flow generated by the online transaction and physical flow of goods provides information on the business events to be tracked and traced. When an after-order-placement service is provided, additional information can be generated as traceability information.

5.2 Driving factors of traceability for quality assurance

5.2.1 Overview

Compliance and transparency are two major driving factors of E-commerce supply chain demands on goods traceability for quality assurance.

5.2.2 Compliance

A large variety of goods traded on E-commerce platforms should meet the goods traceability requirements of countries or regions, such as food, cosmetics and toys. Meanwhile, small-in-size E-commerce, comprised primarily of large volumes of small packaged, low-value, direct-to-buyer goods, poses greater challenges to the regulatory compliance of goods, e.g. inspection resource constraints, data limitation, responsibility identification. All relevant parties in E-commerce supply chains demand availability and accessibility of information for goods compliance. In E-commerce supply chains, the compliance requirements can include:

a) Requirements of local market access: The goods should comply with local requirements regarding quality and traceability, in accordance with those specified by the producing or exporting countries or regions.

b) Requirements of contracts or agreements: The goods should fulfil the quality requirements agreed between goods supplier and buyer as specified in the supplier code of conduct contract or agreement.

c) Platform requirements: The goods should meet the quality requirements set up by the E-commerce platform operators as a prerequisite for online sale.

d) Consistency requirements: The goods should be consistent with all information published on the E-commerce platform and all statements made by the sellers under every circumstance.

5.2.3 Transparency

The virtual environment of E-commerce with the online-presence of some elements (e.g. goods, seller) increases the need for information transparency for all participants of E-commerce supply chains. In the E-commerce context, transparency requirements can include:

a) Data visibility: Participants need a clear view and reliable updates of the conditions of the goods sold online, including but not limited to, where they are or have been, under whose custody they are or have been, when and why certain business process happens, etc.

b) Data availability: Information should be collected, recorded and retained, using open standards, or the format agreed upon within the participants to make it exchangeable for relevant participants.

c) Data accessibility: Authorized participants should be able to accurately obtain and use information to meet their needs of goods quality assurance.

d) Data connectivity: Necessary links should be established among related information in order to enable easy identification and retrieval.

Analysis of compliance and transparency requirements on supply chains in E-commerce can provide guidance to formulate and determine goods quality statements for establishing traceability.

6 Establishing traceability

6.1 Participants

Figure 2 gives a generic picture of participants for establishing traceability in E-commerce. They are grouped as:

a) traceability partners, who can directly or indirectly participate in E-commerce traceability;