
**Information technology — Business
operational view —**

**Part 9:
Business transaction traceability
framework for commitment exchange**

Technologies de l'information — Vue opérationnelle des affaires —

*Partie 9: Cadre de traçabilité des transactions d'affaires pour
l'échange d'engagements*



IECNORM.COM : Click to view the full PDF of ISO/IEC 15944-9:2023



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2023

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

	Page
Foreword.....	vii
Introduction.....	viii
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	2
4 Abbreviated terms.....	18
5 Principles and assumptions.....	18
5.1 Overview.....	18
5.2 Important Open-edi characteristics that provide support for traceability.....	19
5.3 Principles for traceability.....	20
5.3.1 Overview of the principles.....	20
5.3.2 Traceability principle 1: Unambiguous identification.....	20
5.3.3 Traceability principle 2: Record-keeping.....	20
5.3.4 Traceability principle 3: Defined level of granularity.....	21
5.3.5 Traceability principle 4: Ensuring traceability among parties.....	21
5.3.6 Traceability principle 5: Precision in temporal and/or location referencing.....	21
5.4 Two types of tracking.....	22
6 Traceability reference model.....	22
6.1 General model.....	22
6.2 Traceability data in business transaction.....	23
6.2.1 Predefined and structured traceability data.....	23
6.2.2 Predefined contents of traceability data.....	23
6.3 General content of traceability data.....	25
6.3.1 General rules for identification of BTEs.....	25
6.3.2 Integration and interoperability of identification schema.....	26
6.3.3 Identification and description of traceable commitments and non-traceable commitments.....	28
6.3.4 Rules governing unambiguous identification of Person in support of traceability requirements.....	29
6.3.5 Business event.....	29
7 Traceability requirements to business transaction components.....	31
7.1 Overview.....	31
7.2 General requirements.....	31
7.2.1 Key components of a business transaction.....	31
7.2.2 Commitment exchange.....	31
7.3 Traceability requirements on Person.....	31
7.3.1 General requirements on Person.....	31
7.3.2 Requirements on a regulator.....	32
7.3.3 Requirements on a buyer.....	32
7.3.4 Requirements on Person as an individual — Privacy protection and individual accessibility requirements.....	32
7.4 Traceability requirements on process.....	33
7.5 Traceability requirements on data.....	34
7.5.1 Overview.....	34
7.5.2 Traceability data retention.....	34
7.5.3 State changes.....	34
7.5.4 Business transaction ID.....	34
7.5.5 Unambiguous traceability data.....	34
7.5.6 Traceability data sharing.....	35
7.5.7 Master data (in a business transaction).....	35
8 Open-edi collaboration space and traceability.....	35

8.1	Overview.....	35
8.2	Basic Open-edi collaboration space: Independent view of traceability.....	36
8.3	Collaboration space: Roles of buyer, seller and regulator.....	36
9	Traceability attributes for Open-edi scenario.....	37
9.1	Overview.....	37
9.2	Template structure and contents.....	37
9.3	Template for specifying the scope of an Open-edi scenario — Traceability requirements perspective.....	37
Annex A	(normative) Consolidated controlled vocabulary definitions and associated terms, as human interface equivalents (HIEs), English and French language equivalency in the IT standardization context.....	42
Annex B	(informative) Introduction to GS1 Glossary.....	45
Annex C	(informative) Date/time referencing.....	49
Annex D	(informative) Introduction to ISO/IEC 15944-5:2008, Annex D and Annex E regarding business location.....	50
Annex E	(informative) Samples of international standards or specifications in support of traceability requirements.....	51
Annex F	(informative) Mapping of BTEs through their identifiers in a traceability framework.....	52
Annex G	(Informative) Introduction to sample regulations as the sources of requirements of traceability.....	55
Annex H	(Informative) Exclusions and aspects not currently addressed to the scope.....	57
Bibliography		59

List of Figures

Figure 1 — Open-edi environment	ix
Figure 2 — Integrated view — Business Operational Requirements	xi
Figure 3 — Model of traceability concepts	22
Figure 4 — Focus of BOV Open-edi standardization work required by traceability — Predefined and structured traceability data	23
Figure 5 — Content model for traceability in a business transaction	24
Figure 6 — Identification radar: What it covers	26
Figure 7 — Commitments including traceable and non-traceable commitments	28
Figure 8 — Information model of business event	30
Figure 9 — Collaboration space with regulator as external constraints of traceability	36
Figure F.1 — Entity and entity Mapping	52
Figure F.2 — Chain of commitment exchange traceability mapping among entity identifiers	53
Figure F.3 — Traceability route in a food business transaction with multi-parties	54

List of Tables

Table 1 — Attributes for scenario scoping.....37

IECNORM.COM : Click to view the full PDF of ISO/IEC 15944-9:2023

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

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 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 or www.iec.ch/members_experts/refdocs).

ISO and IEC draw attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO and IEC take no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO and IEC had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents and <https://patents.iec.ch>. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html. In the IEC, see www.iec.ch/understanding-standards.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 32, *Data management and interchange*.

This second edition cancels and replaced the first edition (ISO/IEC 15944-9:2015), which has been technically revised.

The main changes are as follows:

- [Clause 1](#) (Scope) has been amended to move the detailed description of "Exclusions" and "Aspects not currently addressed" to a separate informative annex;
- entries in [Clause 2](#) and [Clause 3](#) have been removed to be more conformant to ISO Directives;
- definitions in [Clause 3](#) have been updated to be aligned with other referenced source definitions;
- clauses and annexes have been aligned to changes in ISO/IEC JTC1 Directives, Part 2;
- there are minor edits of a temporal nature with respect to dated references, changes in URLs referenced, minor edits, change of font to Cambria, as well as application of the new "ISO House Style", etc.

A list of all parts in the ISO/IEC 15944 series can be found on the ISO and IEC websites.

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 and www.iec.ch/national-committees.

Introduction

0.1 Purpose and overview

Modelling of a business transaction through scenarios and scenario components is done through specifying the applicable constraints using explicitly stated rules. The Open-edi Reference Model identified two basic classes of constraints, namely, “internal constraints” and “external constraints”. External constraints apply to most business transactions.

Jurisdictional domains are the primary source of external constraints on a business transaction. Traceability requirements in turn are a common requirement of most jurisdictional domains, although they may result from explicit scenario demands from or on the parties to a business transaction, as well as the goal, i.e., nature of the business transaction. The internal constraints are imposed in Open-edi due to mutual agreements among parties to a business transaction and the external constraints are invoked by the nature of a business transaction due to applicable laws, regulations, policies, etc. of jurisdictional domains which need to be considered in Open-edi business transactions. All requirements in this document originate from external constraints. However, parties to a business transaction may well by mutual agreement apply external constraints of this nature as internal constraints.

In the actualization and post-actualization phases of a business transaction, traceability is needed for the movement of goods, services and/or rights from seller to buyer, and for the associated payment from buyer to seller. The focus therefore of this traceability framework standard is on commitment exchange among autonomous parties to a business transaction.

This document presents a framework consisting of several models, including a reference model, a model of concepts, a content model, an information model, as well as rules, templates and other technical specifications for traceability requirements based on internal or external constraints as applicable to a business transaction.

0.2 ISO/IEC 14662 “Open-edi Reference Model”

ISO/IEC 14662¹⁾ provides the conceptual architecture necessary for carrying out electronic business transactions among autonomous parties. That architecture identifies and describes the need to have two separate and related views of the business transaction. The first is the Business Operational View (BOV), the second is the Functional Service View (FSV). ISO/IEC 14662:2010, Figure 1 illustrates the Open-edi environment.

1) ISO/IEC 14662(E/F) is an English/French, side-by-side, International Standard. Its 2010 3rd edition has become a stabilized standard and is now also an ISO/IEC declared “horizontal” standard, i.e., one serving as a base standard for those developing standards in the various fields of EDI, including eBusiness. The stabilized status of ISO/IEC 14662 was re-affirmed for another 10 years by ISO/IEC JTC1 in 2021. ISO/IEC 14662 has since its 1997 1st edition been an ISO/ISO freely available standard. [See further <https://standards.iso.org/ittf/PubliclyAvailableStandards/index.html>]

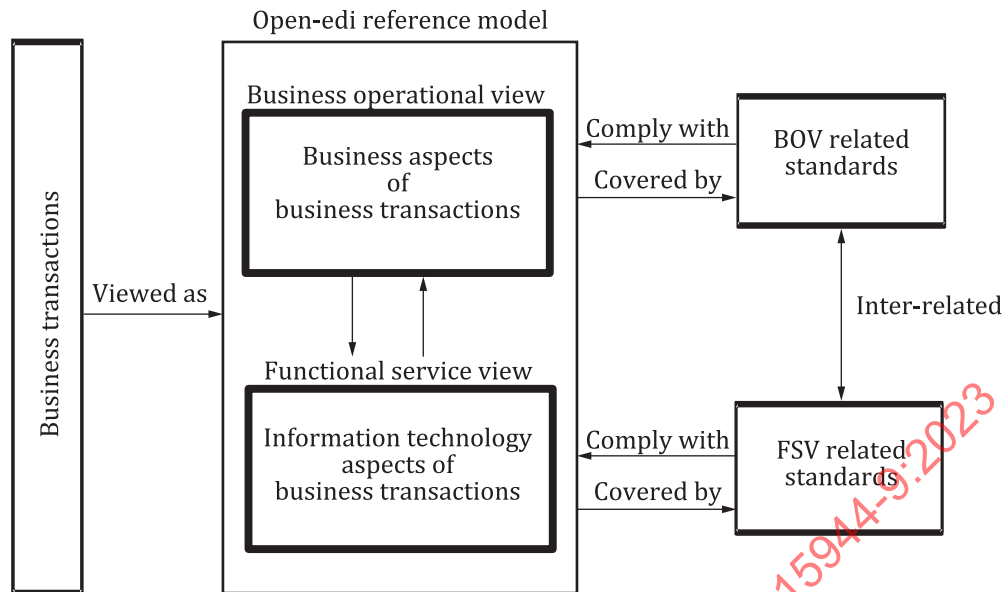


Figure 1 — Open-edi environment

According to ISO/IEC 14662:2010, Clause 5:

“The intention is that the sending, by an Open-edi Party, of information from a scenario, conforming to Open-edi standards, shall allow the acceptance and processing of that information in the context of that scenario by one or more Open-edi Parties by reference to the scenario and without the need for agreement. However, the legal requirements and/or liabilities resulting from the engagement of an organization in any Open-edi transaction may be conditioned by the competent legal environment(s) of the formation of a legal interchange agreement among the participating organizations. Open-edi Parties need to observe rule-based behaviour and possess the ability to make commitments in Open-edi, (e.g., business, operational, technical, legal, and/or audit perspectives)”.

See also ISO/IEC 14662:2010, Figure A.1.

This document is a BOV standard which focuses on the business operational view (including internal constraints as well as external constraints) for the application of traceability from an Open-edi perspective, and, as required, follow-up standards development in support of the “Open-edi Reference Model”.

The purpose of this document includes identifying the means by which laws and regulations of a jurisdictional domain impact scenarios and scenario components as external constraints and how they are modelled and represented.

Finally, it is noted that the approach taken in ISO/IEC 15944-1:2023, Clause 7 is, as stated in ISO/IEC 15944-1:2023, 7.1:

“... that of identifying the most primitive common components of a business transaction and then moving from the general to the more detailed, the simplest aspects to the more complex, from no external constraints on a business transaction to those which incorporate external constraints, from no special requirements on functional services to specific requirements, and so on”.

This document focuses on addressing generally definable aspects of both internal constraints relating to traceability which is mutually agreed to by parties to a business transaction, and external constraints for which the source is a jurisdictional domain. A useful characteristic of external constraints is that at the sector level, national and international levels, etc., focal points and recognized authorities often already exist. The rules and common business practices in many sectorial areas are already known. Use of ISO/IEC 15944 series (and related standards) will facilitate the transformation of these external constraints as business rules (see 0.5) into specified, registered, and re-useable scenarios and scenario components.

0.3 ISO/IEC 15944-1: Business Operational View (BOV) — Operational aspects of Open-edi for implementation

ISO/IEC 15944-1 identifies and enumerates the many requirements of the BOV aspects of Open-edi in support of electronic business transactions. These requirements need to be taken into account in the development of business semantic descriptive techniques for modelling e-business transactions and components thereof as re-useable business objects. They include:

- a) commercial frameworks and associated requirements;
- b) legal frameworks and associated requirements;
- c) public policy requirements, particularly those of a generic nature such as consumer protection, privacy, and accommodation of handicapped/disabled;
- d) requirements arising from the need to support cultural adaptability. This includes meeting localization and multilingual requirements (e.g., as may be required by a particular jurisdictional domain or desired to provide a good, service and/or right in a particular market);
- e) in specifying scenarios, scenario components, and their semantics in the context of making commitments, one needs to distinguish between:
 - 1) the use of unique, unambiguous and linguistically neutral identifiers (often as composite identifiers) at the information technology (IT) interface level among the IT systems of participating parties on the one hand; and, on the other,
 - 2) their multiple human interface equivalent (HIE) expressions in a presentation form appropriate to the Persons involved in the making of the resulting commitments. (See ISO/IEC 15944-10:2023, 5.4). It is the intention of this document that the modelling of scenario and its components about traceability takes this approach.

[Figure 2](#) provides an integrated view of these business operational requirements. [Figure 2](#) is based on ISO/IEC 15944-1:2023, Figure 3. The focus of this document is that of internal and external constraints, and those constraints about traceability may be either from legal requirements²⁾, commercial requirements³⁾, or public policy requirements⁴⁾, which are the shaded “clouds” in [Figure 2](#), while other sources for external constraints than traceability is represented in [Figure 2](#) as “clouds” not shaded.

2) One example of the legal traceability requirement can be the EU EC N78/2002, which is obligatory and contains traceability requirement for the purpose of food safety.

3) The commercial framework is mostly “for profit” activities among private companies and individuals, where features of traceability in a product may be required by or provide added benefit to the customer.

4) One example of the traceability public policy requirement can be “The 12th Five Year Plan on National Food Safety Supervision System” issued by state council of China.

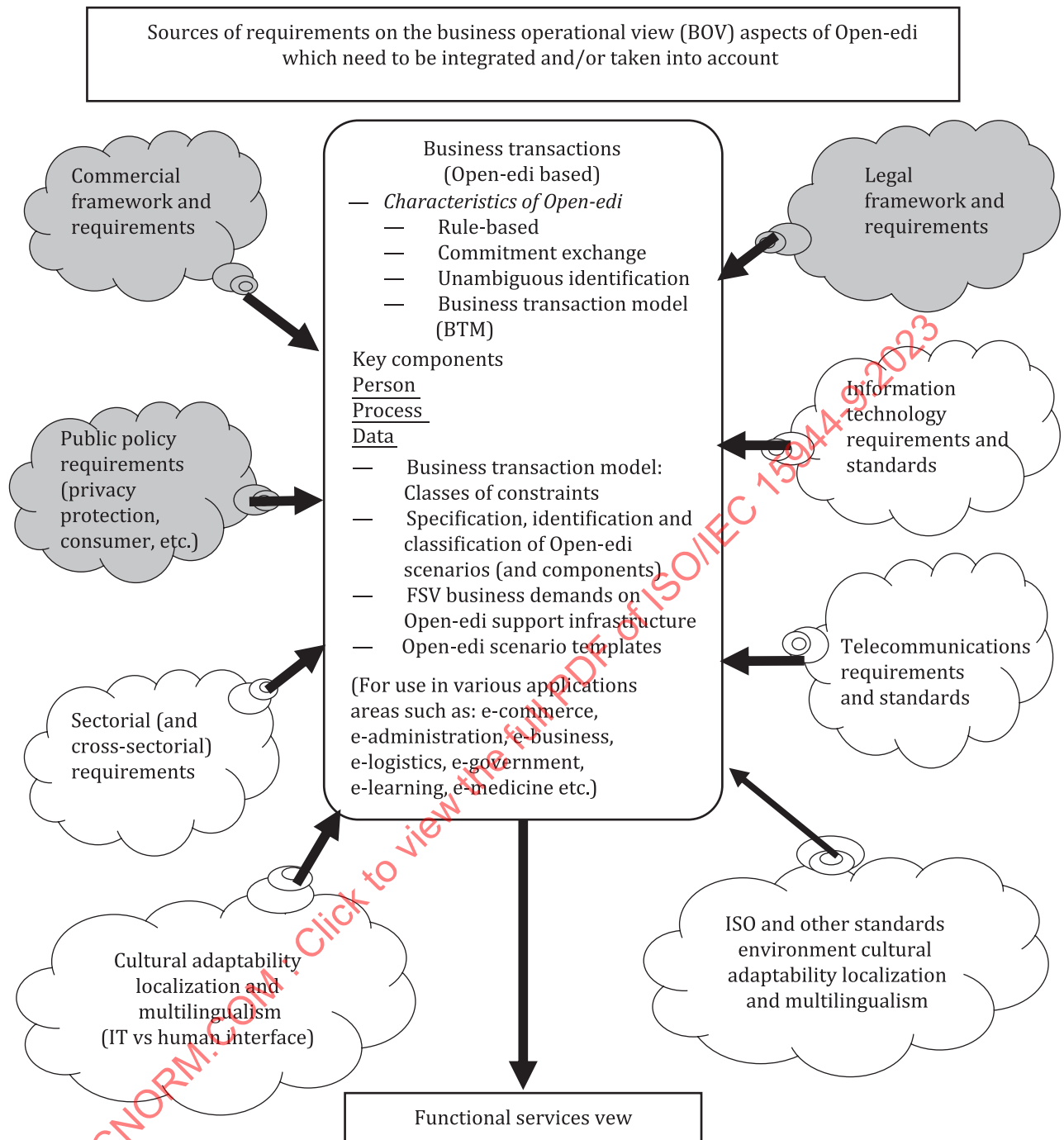


Figure 2 — Integrated view — Business Operational Requirements

0.4 “Traceability” in the context of business transaction and commitment exchange

Traceability in a business transaction originates from the (common) legal practices in jurisdictional domains that require the identification and verification of any non-conformance with applicable legal/regulatory requirements pertaining to the goal of the business transaction including the ability to withdraw and/or recall products, services and/or rights. The requirements for traceability in a business transaction to support constraints (internal and external) include the need:

- to fulfil any local, regional national or international regulations or policies, as applicable;
- to meet the requirement of reporting by the seller to the regulator;

- c) to meet the labelling requirements of applicable regulators;
- d) to support safety and/or quality objectives;
- e) to determine the history or origin of the products;
- f) to facilitate the withdrawal and/or recall of products;
- g) to identify the responsible organizations in case of emergency;
- h) to facilitate the verification of specific information about the product;
- i) to meet consumer specification(s);
- j) to meeting post-actualization requirements such as refund policy, product recall, warranty issue, etc.
- k) to meet the requirements of mutual agreement among parties to a business transaction;
- l) to communicate information to relevant stakeholders and consumers.

In the Open-edi context, commitment exchange is added to information exchange, and entities are unambiguously identified. With the requirements imposed internally or externally, the business transactions are automated based on Open-edi system. In order to model the business transactions that meet the requirements of traceability, there needs to be considerations on those specific requirements on traceability to a business transaction, including the principles, methodologies for information modelling, and requirements to components of a business transaction, etc.

This document adopts a top-down approach for an Open-edi based traceability framework for commitment exchange, and associated accountabilities, among parties to a business transaction. As such, it will assist implementers and standards developers from a business operational perspective in considering or developing the framework, and/or strategies to support traceability requirements in e-commerce, e-logistics, e-learning, e-medicine, e-government, etc.

For example, business analyser(s) and/or system designer(s) can consider and/or incorporate the rules stated in this document in developing the architecture of business transaction. The incorporation of these rules can be done either by understanding and adopting the requirements reflected in these rules, or by transforming these rules in IT-enabled format and integrating them in the system configuration.

0.5 Representation of rules and guidelines

As defined in [5.1](#) and ISO/IEC 15944-1:2023, 6.1.2, this document uses the “rule-based” approach, and the common rules are sequentially enumerated and presented in **bold** font, while guidelines which are provided for a rule are numbered sequentially after that rule and are shown in **bold** and *italic* font. For example, in ISO/IEC 15944-1:2023 “Guideline 5G2” equals the second Guidelines under Rule 5. The same approach is taken in this document.

Conformance to this document is based on the conformance to the rules stated in this document.

0.6 Organization and description of document

This document consists of nine clauses, one normative annex and five informative annexes. The first four clauses are normative to all standards, i.e., scope, normative references, terms and definitions, and symbols and abbreviations. The remaining five clauses of this document are normative and as follows.

- [Clause 5](#) presents the principles and assumptions about traceability put in an Open-edi context. These principles are fundamental to the understanding of other clauses, and thus contain no rules or Guidelines. Also, a categorization of two types of practices of traceability is described in this clause as an assumption.
- [Clause 6](#) provides the traceability framework as a reference model.
- [Clause 7](#) states the requirements of traceability that affect different aspects of a business transaction.

- [Clause 8](#) introduces aspects of Open-edi collaboration space that are affected by traceability requirements.
- [Clause 9](#), as with other parts of ISO/IEC 15944, provides a template of attributes for scenario and scenario components.
- [Annex A](#) (normative) provides the English and French language equivalents for terms and definitions found in [Clause 3](#) which are introduced for the first time, i.e., are not found in the existing parts of ISO/IEC 15944 series as well as ISO/IEC 14662.
- [Annex B](#) (informative) introduces the GS1 glossary so that readers are able to understand the concept of interoperability of this document and the GS1 traceability specifications.
- [Annex C](#) (informative) introduces date/time-based referencing on ISO/IEC 15944-5:2008, 6.6.4.5 that are used by Open-edi implementations in order to ensure that these traceability attributes are identified correctly.
- [Annex D](#) (informative) introduces codes for the identification of business locations by jurisdictional domains including their official (or de facto) languages. [Annex D](#) is based on and summarizes normative text found in ISO/IEC 15944-5:2008 which includes country codes representing UN member states so that Open-edi implementations adhere to the traceability requirements of jurisdictional domain(s) for stating business locations.
- [Annex E](#) (informative) provides samples of other international standards or specifications that support traceability; namely: ISO 26324; ISO/IEC 15459, ITU-T X.660, UN/CPC, UN/SPSC and WCO/HS.
- [Annex F](#) (informative) provides a mapping of BTEs using identifiers in a traceability framework for the purposes of supporting the design of information systems and other necessary instrument enabling traceability.
- [Annex G](#) (informative) introduces samples of regulations as sources of traceability requirements.
- [Annex H](#) (informative) describes the exclusions to the scope of the document and aspects of traceability requirements that are currently not addressed in the current edition of this document.

The document concludes with a bibliography citing references to both ISO and ISO/IEC international standards (which are not used as Normative References in [Clause 2](#)), and other relevant documents.

IECNORM.COM : Click to view the full PDF of ISO/IEC 15944-9:2023

Information technology — Business operational view —

Part 9:

Business transaction traceability framework for commitment exchange

1 Scope

This document:

- specifies a group of structured and inter-related concepts pertaining to traceability as a legal or regulatory requirement in the Open-edi context, in addition to concepts that appear in other parts of ISO/IEC 15944 series these concepts having the characteristics of cultural adaptability through the use of multilingual terms and definitions;
- provides additional specifications for Open-edi scenarios and scenario components from the perspective of traceability as required by internal or external constraints in business transactions;
- provides a more detailed specification for business transactions regarding aspects of traceability, including refined models of Person, Data and Process in support of the ability for Open-edi to incorporate elements or characteristics of traceability in its information bundles (including their semantic components) and business processes;
- realizes specifications and descriptions from the traceability requirements as rules and guidelines, to provide recommendations or guidance on Open-edi practices; and,
- provides revised primitive Open-edi scenario templates for traceability, integrating the modifications to the template from other existing parts of ISO/IEC 15944 series.

This document can be used by Open-edi implementers (including business modellers and system designers) and Open-edi standard developers in specifying Open-edi scenarios, developing Open-edi related standards, and implementing Open-edi rules and guidelines for Open-edi activities.

This document does not specify the FSV aspects of traceability, internal behaviour requirements of an organization, or traceability as a metrological concept. Detailed exclusions to the scope of this document are provided in [Annex H](#).

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/IEC 15944-1:2023, *Information technology — Business operational view — Part 1: Operational aspects of Open-edi for implementation*

ISO/IEC 15944-5:2008, *Information technology — Business operational view — Part 5: Identification and referencing of requirements of jurisdictional domains as sources of external constraints*

ISO/IEC 15944-8:2012, *Information technology — Business operational view — Part 8: Identification of privacy protection requirements as external constraints on business transactions*

ISO/IEC 15944-10:2023, *Information technology — Business operational view — Part 10: IT-enabled coded domains as semantic components in business transactions*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological 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 address

set of *data elements* (3.26) that specifies a *location* (3.44) to which a *recorded information* (3.67) item(s), a *business object(s)* (3.7), a material *object(s)* (3.48) and/or a person(s) can be sent or from which it can be received

Note 1 to entry: An address can be specified as either a physical address and/or electronic address.

Note 2 to entry: In the identification, referencing and retrieving of registered business objects, it is necessary to state whether the pertinent recorded information is available in both physical and virtual forms.

Note 3 to entry: In the context of Open-edi, a “recorded information item” is modelled and registered as an Open-edi scenario (OeS), Information Bundle (IB) or Semantic Component (SC).

[SOURCE: ISO/IEC 15944-2:2015, 3.1]

3.2 agent

Person (3.57) acting for another *Person* in a clearly specified capacity in the context of a *business transaction* (3.9)

Note 1 to entry: Excluded are agents as “automatons” (or robots, bobots, etc.). In ISO/IEC 14662, “automatons” are recognized and provided for but as part of the Functional Service View (FSV), where they are defined as “Information Processing Domain (IPD)”.

[SOURCE: ISO/IEC 15944-1:2023, 3.1]

3.3 attribute

characteristic of an *object* (3.48) or *entity* (3.31)

[SOURCE: ISO/IEC 11179-3:2023, 3.1.11, modified — “set of objects” has been replaced by “entity”]

3.4 business

series of *processes* (3.63), each having a clearly understood purpose, involving more than one *Person* (3.57), realized through the exchange of *recorded information* (3.67) and directed towards some mutually agreed upon goal, extending over a period of time

[SOURCE: ISO/IEC 14662:2010, 3.2]

3.5 business event

occurrence in time that *partners* (3.56) to a *business transaction* (3.9) wish to monitor or control

Note 1 to entry: Business events are the workflow tasks that business partners need to accomplish to complete a business transaction among themselves. As business events occur, they cause a business transaction to move through its various phases of planning, identification, negotiation, actualization, and post-actualization.

Note 2 to entry: Occurrences in time can either be (1) internal as mutually agreed to among the parties to a business transaction; and/or, (2) reference some common publicly available and recognized date/time referencing schema, (e.g., one based on using ISO 8601 and/or ISO 19135 standard).

[SOURCE: ISO/IEC 15944-4:2015, 3.5]

3.6

business location

geographic site where an economic event is deemed to occur with its attendant transfer of an economic resource from one *Person* (3.57) to another

[SOURCE: ISO/IEC 15944-4:2015, 3.6]

3.7

business object

unambiguously (3.84) identified, specified, referenceable, registered and re-useable *Open-edition scenario* (3.52) or *scenario component* (3.76) of a *business transaction* (3.9)

Note 1 to entry: As an “object”, a “business object” exists only in the context of a business transaction.

[SOURCE: ISO/IEC 15944-2:2015, 3.6]

3.8

Business Operational View

BOV

perspective of *business transactions* (3.9) limited to those aspects regarding the making of *business* (3.4) decisions and *commitments* (3.17) among *Persons* (3.57), which are needed for the description of a *business transaction*

[SOURCE: ISO/IEC 14662:2010, 3.3]

3.9

business transaction

predefined set of activities and/or *processes* (3.63) of *Persons* (3.57) that is initiated by a *Person* to accomplish an explicitly shared *business* (3.4) goal and terminated upon recognition of one of the agreed conclusions by all the involved *Person*, although some of the recognition may be implicit

[SOURCE: ISO/IEC 14662:2010, 3.4]

3.10

business transaction entity

BTE

computable representation of any real-world *entity* (3.31) that participates, occurs or is materialized during a *business transaction* (3.9)

[SOURCE: ISO/IEC 15944-4:2015, 3.9]

3.11

business transaction identifier

BTI

identifier (3.37) assigned by a *seller* (3.77) or a *regulator* (3.68) to an instantiated *business transaction* (3.9) among the *Persons* (3.57) involved

Note 1 to entry: The identifier assigned by the seller or regulator shall have the properties and behaviours of an “identifier (in a business transaction)”.

Note 2 to entry: As an identifier (in a business transaction), a BTI serves as the unique common identifier for all *Persons* involved for the identification, referencing, retrieval of recorded information, etc., pertaining to the commitments made and the resulting actualization (and post-actualization) of the business transaction agreed to.

Note 3 to entry: A business transaction identifier can be assigned at any time during the planning, identification or negotiation phases but shall be assigned prior to the start or during the actualization phase.

Note 4 to entry: As and where required by the applicable jurisdictional domain(s), the recorded information associated with the business transaction identifier (BTI) may well require the seller to include other identifiers, (e.g., for a value-added good or service tax, etc.) as assigned by the applicable jurisdictional domain(s).

[SOURCE: ISO/IEC 15944-5:2008, 3.12]

3.12

business transaction traceability

BTT

requirement to provide *set(s) of recorded information (SRIs)* (3.80) on the status and/or nature of a good, service and/or right, which is the goal of the *business transaction* (3.9), in its transfer, transport, and/or *location(s)* (3.44), from a *seller* (3.77) to a *buyer* (3.13), as either: (1) agreed to by the parties to a *business transaction* as part of *internal constraints* (3.42); and/or, (2) imposed by a *regulator(s)* (3.68) as applicable *external constraints* (3.32), based on the nature of the good, service, and/or right, which is the goal of the *business transaction*.

Note 1 to entry: Traceability requirements which are of an internal constraint nature need to be specified and agreed to by the parties to a business transaction as part of both the process and data components in an Open-edi scenario before or at the negotiation phase and include those which apply to the actualization phase, and where applicable, to the post-actualization phase.

Note 2 to entry: Traceability requirements which are of an external constraint nature shall be: (1) specified during the planning or identification phase of the process component; and, (2) be finalized during the negotiation phase. This may include obtaining sets of recorded information in the form of registrations, identifiers and/or approval from applicable regulatory authorities prior to the actualization of the instantiation of a business transaction.

Note 3 to entry: SRIs required to support traceability requirements manifest themselves as semantic components (SCs) as part of IBs in Open-edi scenarios.

Note 4 to entry: External constraints pertaining to traceability requirements may have state changes and record retention requirements which are unique to that external constraint.

Note 5 to entry: There is a need to follow and have evidence in place to allow traceability to occur. The nature of Open-edi business transactions being based on rules, etc., ensures that evidence can be followed.

3.13

buyer

Person (3.57) who aims to get possession of a good, service and/or right through providing an acceptable equivalent value, usually in money, to the *Person* providing such a good, service and/or right

[SOURCE: ISO/IEC 15944-1:2023, 3.8]

3.14

coded domain

domain for which (1) the boundaries are defined and explicitly stated as a *rulebase* (3.74) of a coded domain Source Authority, and, (2) each *entity* (3.31) which qualifies as a member of that domain is identified through the assignment of a unique *ID Code* (3.35) in accordance with the applicable Registration Schema of that Source Authority

Note 1 to entry: The rules governing the assignment of an ID code to members of a coded domain reside with its Source Authority and form part of the Coded Domain Registration Schema of the Source Authority.

Note 2 to entry: Source Authorities which are jurisdictional domains are the primary source of coded domains.

Note 3 to entry: A coded domain is a data set for which the contents of the data element values are predetermined and defined according to the rule base of its Source Authority and as such have predefined semantics.

Note 4 to entry: Associated with a code in a coded domain can be: - one or more equivalent codes; - one or more equivalent representations, especially Human Interface Equivalent (HIE) (linguistic) expressions.

Note 5 to entry: In a coded domain the rules for assignment and structuring of the ID codes must be specified.

Note 6 to entry: Where an entity as member of a coded domain is allowed to have, i.e., to be assigned, more than one ID code (possibly including names) as equivalent identifiers, one of these must be specified as the pivot ID code.

Note 7 to entry: A coded domain can in turn consist of two or more coded domains through the application of the inheritance principle of object classes.

Note 8 to entry: A coded domain may contain ID codes that pertain to predefined conditions other than qualification of membership of entities in the coded domain. The rules governing a coded domain may provide for user extensions.

EXAMPLE 1 (1) the use of ID Code “0” (or “00”, etc.) for “Others”, (2) the use of ID Code “9” (or “99”, etc.) for “Not Applicable”, (3) the use of “8” (or “98”) for “Not Known”; and (4) the pre-reservation of a series of ID codes for use of “user extensions”.

Note 9 to entry: In object methodology, entities that are members of a coded domain are referred to as instances of a class.

EXAMPLE 2 In UML modelling notation, an ID code is viewed as an instance of an object class.

[SOURCE: ISO/IEC 15944-2:2015, 3.13]

3.15 code

<in coded domain> *identifier* (3.37), i.e., an *ID Code* (3.35), assigned to an *entity* (3.31) as member of a *coded domain* (3.14) according to the pre-established set of *rules* (3.73) governing that *coded domain*

[SOURCE: ISO/IEC 15944-5:2008, 3.19]

3.16 collaboration space

business (3.4) activity space where an economic exchange of valued resources is viewed independently and not from the perspective of any *business partner* (3.56)

Note 1 to entry: In collaboration space, an individual partner’s view of economic phenomena is de-emphasized. Thus, commonly used business and accounting terms like purchase, sale, cash receipt, cash disbursement, raw materials, and finished goods are not allowed, because they view resource flows from a participant’s perspective.

[SOURCE: ISO/IEC 15944-4:2015, 3.12]

3.17 commitment

making or accepting of a right, obligation, liability or *responsibility* (3.70) by a *Person* (3.57) that is capable of enforcement in the *jurisdictional domain* (3.43) in which the commitment is made

[SOURCE: ISO/IEC 14662:2010, 3.5]

3.18 concept

unit of knowledge created by a unique combination of characteristics

Note 1 to entry: Concepts are not necessarily bound to particular natural languages. They are, however, influenced by the social or cultural background which often leads to different categorizations.

[SOURCE: ISO 1087:2019, 3.2.7, modified — Removal of Note 2 to entry]

3.19 constraint

rule (3.73), explicitly stated, that prescribes, limits, governs or specifies any aspect of a *business transaction* (3.9)

Note 1 to entry: Constraints are specified as rules forming part of components of Open-edi scenarios, i.e., as scenario attributes, roles, and/or information bundles.

Note 2 to entry: For constraints to be registered for implementation in Open-edi, they must have unique and unambiguous identifiers.

Note 3 to entry: A constraint that is agreed to among parties (as a condition of contract) is considered an “internal constraint”, whereas a constraint imposed on parties by laws, regulations, etc., is considered an “external constraint”.

[SOURCE: ISO/IEC 15944-1:2023, 3.11]

3.20

consumer

buyer (3.13) who is an *individual* (3.38) to whom *consumer protection* (3.21) requirements are applied as a set of *external constraints* (3.32) on a *business transaction* (3.9)

Note 1 to entry: Consumer protection is a set of explicitly defined rights and obligations applicable as external constraints on a business transaction.

Note 2 to entry: The assumption is that consumer protection applies only where a buyer in a business transaction is an individual. If this is not the case in a particular jurisdiction, such external constraints should be specified as part of scenario components as applicable.

Note 3 to entry: It is recognized that external consumer protection constraints on a buyer may be peculiar to a specified jurisdictional domain.

[SOURCE: ISO/IEC 15944-1:2023, 3.12]

3.21

consumer protection

set of *external constraints* (3.32) of a *jurisdictional domain* (3.43) as rights of a *consumer* (3.20) and thus as obligations (and possible liabilities) of a vendor in a *business transaction* (3.9) which apply to the good, service and/or right forming the *object* (3.48) of the *business transaction* (including associated information management and interchange requirements including applicable *(sets of) recorded information* (3.67))

Note 1 to entry: Jurisdictional domains may restrict the application of their consumer protection requirements as applicable only to individuals engaged in a business transaction of a commercial activity undertaken for personal, family or household purposes, i.e., they do not apply to natural persons in their role as “organization” or “organization Person”.

Note 2 to entry: Jurisdictional domains may have particular consumer protection requirements which apply specifically to individuals who are considered to be a “child” or a “minor”, (e.g., those individuals who have not reached their thirteenth birthday).

Note 3 to entry: Some jurisdictional domains may have consumer protection requirements which are particular to the nature of the good, service and/or right being part of the goal of a business transaction.

[SOURCE: ISO/IEC 15944-5:2008, 3.33]

3.22

contact

instance of a *role* (3.72) of a *Person* (3.57) to whom a *recorded information* (3.67) item(s), a material *object(s)* (3.48), a *business object(s)* (3.7), can be sent to or received from in a specified context

Note 1 to entry: A Person here as a Contact can be an individual, an organization (or organization part or organization Person).

Note 2 to entry: Contact is capitalized to distinguish it from the many ordinary uses of the term.

Note 3 to entry: Harmonized with ISO/IEC 11179-3:2013 and Cor.1:2004 but from an eBusiness perspective

[SOURCE: ISO/IEC 11179-3:2023, 3.2.78, modified — added Notes to entry 1, 2 and 3.]

3.23**custody**

association between a *Person* (3.57) and an economic resource where the *Person* has physical control only over the resource or controls access

Note 1 to entry: Having custody of a good, service and/or right does not imply and is differentiated from having economic control of the same, (e.g. a *Person* may have economic control of a good even though it is not under its custody).

[SOURCE: ISO/IEC 15944-4:2015, 3.15]

3.24**data**

reinterpretable representation of *information* (3.40) in a formalized manner suitable for communication, interpretation, or processing

Note 1 to entry: Data can be processed by humans or by automatic means.

[SOURCE: ISO/IEC 2382:2015, 2121272]

3.25**data**

<in a business transaction>representations of *recorded information* (3.67) that are being prepared or have been prepared in a form suitable for use in a computer system

[SOURCE: ISO/IEC 15944-1:2023, 3.14]

3.26**data element**

unit of *data* (3.24) for which the definition, *identification* (3.36), representation and permissible values are specified by means of a set of *attributes* (3.3)

[SOURCE: ISO/IEC 15944-1:2023, 3.15]

3.27**data element**

<in organization of data>unit of *data* (3.24) that is considered in context to be indivisible

EXAMPLE The data element "age of a person" with possible values consisting of all combinations of 3 decimal digits.

Note 1 to entry: Differs from the entry 17.06.02 in ISO/IEC 2382-17:1999.

[SOURCE: ISO/IEC 2382:2015, 2121599]

3.28**date**

ISO 8601-compliant representation of a date in an YYYY-MM-DD format using the Gregorian calendar

[SOURCE: ISO/IEC 15944-2:2015, 3.26]

3.29**eBusiness**

business transaction (3.9), involving the making of *commitments* (3.17), in a defined *collaboration space* (3.16), among *Persons* (3.57) using their IT systems, according to *Open-edl standards* (3.53)

Note 1 to entry: eBusiness can be conducted on both a for-profit and not-for-profit basis.

Note 2 to entry: A key distinguishing aspect of eBusiness is that it involves the making of commitment(s) of any kind among the *Persons* in support of a mutually agreed upon goal, involving their IT systems, and doing so through the use of EDI (using a variety of communication networks including the Internet).

Note 3 to entry: eBusiness includes various application areas such as “e-commerce”, “e-administration”, “e-logistics”, “e-government”, “e-medicine”, “e-learning”, etc.

Note 4 to entry: The equivalent French language term for “eBusiness” is always presented in its plural form.

[SOURCE: ISO/IEC 15944-7:2009, 3.6]

3.30 electronic address

address (3.1) used in a recognized electronic addressing scheme, (e.g., telephone, telex, IP, etc.), to which *recorded information* (3.67) item(s) and/or *business object(s)* (3.7) can be sent to or received from a *Contact* (3.22)

[SOURCE: ISO/IEC 15944-2:2015, 3.32]

3.31 entity

any concrete or abstract thing that exists, did exist, or might exist, including associations among these things

EXAMPLE A person, object, event, idea, process, etc.

Note 1 to entry: An entity exists whether data about it are available or not.

[SOURCE: ISO/IEC 2382:2015, 2121433]

3.32 external constraint

constraint (3.19) which takes precedence over *internal constraints* (3.42) in a *business transaction* (3.9), i.e., is external to those agreed upon by the parties to a *business transaction*

Note 1 to entry: Normally external constraints are created by law, regulation, orders, treaties, conventions or similar instruments.

Note 2 to entry: Other sources of external constraints are those of a sectorial nature, those which pertain to a particular jurisdictional domain or mutually agreed to common business conventions (e.g., INCOTERMS, exchanges, etc.).

Note 3 to entry: External constraints can apply to the nature of the good, service and/or right provided in a business transaction.

Note 4 to entry: External constraints can demand that a party to a business transaction meet specific requirements of a particular role.

EXAMPLE 1 Only a qualified medical doctor may issue a prescription for a controlled drug.

EXAMPLE 2 Only an accredited share dealer may place transactions on the New York Stock Exchange.

EXAMPLE 3 Hazardous wastes may only be conveyed by a licensed enterprise.

Note 5 to entry: Where the information bundles (IBs) of a business transaction, including their Semantic Components (SCs), form the whole of a business transaction (e.g., for legal or audit purposes), all constraints must be recorded.

EXAMPLE 4 There may be a legal or audit requirement to maintain the complete recorded information pertaining to a business transaction, i.e., the information bundles exchanged, as a “record”.

Note 6 to entry: A minimum external constraint applicable to a business transaction often requires one to differentiate whether the Person that is a party to a business transaction is an “individual”, “organization”, or “public administration”. For example, privacy rights apply only to a Person as an “individual”.

[SOURCE: ISO/IEC 15944-1:2023, 3.23]

3.33**Formal Description Technique****FDT**

specification method based on a description language using rigorous and *unambiguous* (3.84) *rules* (3.73) both with respect to developing expressions in the language (formal syntax) and interpreting the meaning of these expressions (formal semantics)

[SOURCE: ISO/IEC 14662:2010, 3.9]

3.34**Functional Service View****FSV**

perspective of *business transactions* (3.9) limited to those information technology interoperability aspects of IT Systems needed to support the execution of Open-edi transactions

[SOURCE: ISO/IEC 14662:2010, 3.10]

3.35**ID Code**

identifier (3.37) assigned by the coded domain Source Authority (cdSA) to a member of a *coded domain* (3.14)

Note 1 to entry: ID codes must be unique within the Registration Schema of that coded domain.

Note 2 to entry: Associated with an ID code in a coded domain can be: - one or more equivalent codes; - one or more equivalent representations, especially those in the form of human equivalent (linguistic) expressions.

Note 3 to entry: Where an entity as a member of a coded domain is allowed to have more than one ID code, i.e., as equivalent codes (possibly including names), one of these must be specified as the pivot ID code.

Note 4 to entry: A coded domain may contain ID codes pertaining to entities which are not members as peer entities, i.e., have the same properties and behaviours, such as ID codes which pertain to predefined conditions other than member entities. If this is the case, the rules governing such exceptions must be predefined and explicitly stated.

EXAMPLE (1) the use of an ID code "0" (or "00", etc.), for "Other"; (2) the use of an ID code "9" (or "99") for "Not Applicable"; (3) the use of "8" (or "98") for "Not Known"; and (4) the pre-reservation of a series or set of ID codes for "user extensions".

Note 5 to entry: In UML modelling notation, an ID code is viewed as an instance of an object class.

[SOURCE: ISO/IEC 15944-2:2015, 3.37]

3.36**identification**

rule (3.73)-based *process* (3.63), explicitly stated, involving the use of one or more *attributes* (3.3), i.e., *data elements* (3.26), whose value (or combination of values) is used to identify uniquely the occurrence or existence of a specified *entity* (3.31)

[SOURCE: ISO/IEC 15944-1:2023, 3.26]

3.37**identifier**

<in business transaction>*unambiguous* (3.84), unique and linguistically neutral value resulting from the application of a *rule* (3.73)-based *identification* (3.36) *process* (3.63)

Note 1 to entry: Identifiers must be unique within the identification scheme of the issuing authority.

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 15944-1:2023, 3.27]

3.38

individual

Person (3.57) who is a human being, i.e., a natural person, who acts as a distinct indivisible *entity* (3.31) or is considered as such

[SOURCE: ISO/IEC 15944-1:2023, 3.28]

3.39

individual accessibility

set of *external constraints* (3.32) of a *jurisdictional domain* (3.43) as rights of an *individual* (3.38) with disabilities to be able to use IT Systems at the human, i.e., user, interface and the concomitant obligation of a *seller* (3.77) to provide such adaptive technologies

Note 1 to entry: Although “accessibility” typically addresses users who have a disability, the concept is not limited to disability issues.

EXAMPLE Disabilities in the form of functional and cognitive limitations include: (a) people who are blind; (b) people with low vision; (c) people with colour blindness; (d) people who are hard of hearing or deaf, i.e., are hearing impaired; (e) people with physical disabilities; and, (f) people with language or cognitive disabilities.

[SOURCE: ISO/IEC 15944-5:2008, 3.60]

3.40

information

<in information processing> knowledge concerning *objects* (3.48), such as facts, events, things, *processes* (3.63), or ideas, including *concepts* (3.18), which within a certain context has a particular meaning

[SOURCE: ISO/IEC 2382:2015, 2121271]

3.41

Information Bundle

IB

formal description of the semantics of the *recorded information* (3.67) to be exchanged by *Open-ed Parties* (3.51) playing *roles* (3.72) in an *Open-ed Scenario* (3.52)

[SOURCE: ISO/IEC 14662:2010, 3.11]

3.42

internal constraint

constraint (3.19) which forms part of the *commitment(s)* (3.17) mutually agreed to among the parties to a *business transaction* (3.9)

Note 1 to entry: Internal constraints are self-imposed. They provide a simplified view for modelling and re-use of scenario components of a business transaction for which there are no external constraints or restrictions to the nature of the conduct of a business transaction other than those mutually agreed to by the buyer and seller.

[SOURCE: ISO/IEC 15944-1:2023, 3.33]

3.43

jurisdictional domain

jurisdiction, recognized in law as a distinct legal and/or regulatory framework which is a source of *external constraints* (3.32) on *Persons* (3.57) and their behaviour and the making of *commitments* (3.17) among *Persons*, including any aspect of a *business transaction* (3.9)

Note 1 to entry: The pivot jurisdictional domain is a United Nations (UN) recognized member state. From a legal and sovereignty perspective UN states are considered “peer” entities. Each UN member state (country) may have sub-administrative divisions as recognized jurisdictional domains (e.g., provinces, territories, cantons, länder, etc.) as decided by that UN member state.

Note 2 to entry: Jurisdictional domains can combine to form new jurisdictional domains (e.g., through bilateral, multilateral and/or international treaties).

EXAMPLE The European Union (EU), NAFTA, WTO, WCO, ICAO, WHO, Red Cross, ISO, the IEC, the ITU, etc.

Note 3 to entry: Several levels and categories of jurisdictional domains may exist within a jurisdictional domain.

Note 4 to entry: A jurisdictional domain may impact aspects of the commitment(s) made as part of a business transaction, including those pertaining to the making, selling, or transfer of goods, services and/or rights (and resulting liabilities) and associated information. This is independent of whether such interchange of commitments is conducted on a for-profit or not-for-profit basis and whether it includes monetary values.

Note 5 to entry: Laws, regulations, directives, etc., issued by a jurisdictional domain are considered as parts of that jurisdictional domain and are the primary sources of external constraints on business transactions.

[SOURCE: ISO/IEC 15944-5:2008, 3.67]

3.44

location

place, either physical or electronic, that can be referenced by an *address* (3.1)

[SOURCE: ISO/IEC 15944-2:2015, 3.50]

3.45

master data (in a business transaction)

set(s) of recorded information (SRIs) (3.80) held by a Person (3.57) that describes the entities (3.31) (and business objects (3.7)) that are both independent and fundamental for that Person and that it needs to reference in order to perform its business transaction (3.9) (and/or commitments (3.17))

Note 1 to entry: Master data is defined as set(s) of recorded information (SRIs) as having the following characteristics: (a) permanent or lasting nature; (b) relatively constant across time, not being subject to frequent change, (c) access/use by multiple business process and IT system(s) applications; (d) required to track and verify exchanges of commitments (of whatever nature) pertaining to a commitment exchange aspects of a business transaction; (e) can either be neutral or relationship dependent.

3.46

medium

physical material which serves as a functional unit, in or on which information or *data* (3.24) is normally recorded, in which information or data can be retained and carried, from which information or *data* can be retrieved, and which is non-volatile in nature

Note 1 to entry: This definition is independent of the material nature on which the information is recorded and/or technology used to record the information, (e.g., paper, photographic, (chemical), magnetic, optical, ICs (integrated circuits), as well as other categories no longer in common use such as vellum, parchment (and other animal skins), plastics, (e.g., bakelite or vinyl), textiles, (e.g., linen, canvas), metals, etc.).

Note 2 to entry: The inclusion of the "non-volatile in nature" attribute is to cover latency and records retention requirements.

Note 3 to entry: This definition of "medium" is independent of: (a) form or format of recorded information; (b) physical dimension and/or size; and, (c) any container or housing that is physically separate from material being housed and without which the medium can remain a functional unit.

Note 4 to entry: This definition of "medium" also captures and integrates the following key properties: (a) the property of medium as a material in or on which information or data can be recorded and retrieved; (b) the property of storage; (c) the property of physical carrier; (d) the property of physical manifestation, i.e., material; (e) the property of a functional unit; and, (f) the property of (some degree of) stability of the material in or on which the information or data is recorded.

[SOURCE: ISO/IEC 15944-1:2023, 3.34]

3.47

model

abstraction of some aspect of reality

[SOURCE: ISO 19115-1:2014, 4.14]

3.48

object

anything perceivable or conceivable

Note 1 to entry: Objects can be material (e.g. 'engine', 'sheet of paper', 'diamond'), immaterial (e.g. 'conversion ratio', 'project plan') or imagined (e.g. 'unicorn', 'scientific hypothesis').

[SOURCE: ISO 1087:2019, 3.1.1]

3.49

object class

set of ideas, abstractions, or things in the real world that can be identified with explicit boundaries and meaning and whose properties and behaviour follow the same *rules* (3.73)

[SOURCE: ISO/IEC 11179-1:2015, 3.3.18]

3.50

Open-edi

electronic data interchange among multiple autonomous *Persons* (3.57) to accomplish an explicitly shared *business* (3.4) goal according to *Open-edi standards* (3.53)

[SOURCE: ISO/IEC 14662:2010, 3.14]

3.51

Open-edi Party

OeP

Person (3.57) that participates in *Open-edi* (3.51)

Note 1 to entry: Often referred to generically in this, and other eBusiness standards, (e.g., parts of ISO/IEC 15944 series "eBusiness" standard) as "party" or "parties" for any entity modelled as a Person as playing a role in Open-edi scenarios.

[SOURCE: ISO/IEC 14662:2010, 3.17]

3.52

Open-edi scenario

OeS

formal specification of a class of *business transactions* (3.9) having the same *business* (3.4) goal

[SOURCE: ISO/IEC 14662:2010, 3.18]

3.53

Open-edi standard

standard (3.81) that complies with the *Open-edi* (3.51) Reference Model

[SOURCE: ISO/IEC 14662:2010, 3.19]

3.54

organization

unique framework of authority within which a person or persons act, or are designated to act, towards some purpose

Note 1 to entry: The kinds of organizations covered by this International Standard include the following examples:

EXAMPLE 1 An organization incorporated under law.

EXAMPLE 2 An unincorporated organization or activity providing goods and/or services including: 1) partnerships; 2) social or other non-profit organizations or similar bodies in which ownership or control is vested in a group of individuals; 3) sole proprietorships 4) governmental bodies.

EXAMPLE 3 Groupings of the above types of organizations where there is a need to identify these in information interchange.

[SOURCE: ISO/IEC 15944-1:2023, 3.44]

3.55 origin

source (document, project, discipline or *model* (3.47)) for the OeRI

[SOURCE: ISO/IEC 15944-2:2015, 3.77]

3.56 partner

sub-type of *Person* (3.57) that includes *buyer* (3.13) and *seller* (3.77)

[SOURCE: ISO/IEC 15944-4:2015, 3.51]

3.57 Person

natural or legal person, recognized by law as having legal rights and duties, able to make *commitments* (3.17) and assume and fulfil resulting obligation(s), and accountable for its action(s)

Note 1 to entry: Synonyms for “legal person” include “artificial person”, “body corporate”, etc., depending on the terminology used in competent jurisdictions.

Note 2 to entry: “Person” is capitalized to indicate that it is being used as formally defined in the standards and to differentiate it from its day-to-day use.

Note 3 to entry: Minimum and common external constraints applicable to a business transaction often require one to differentiate among three common subtypes of *Person*, namely “individual”, “organization”, and “public administration”.

[SOURCE: ISO/IEC 14662:2010, 3.24]

3.58 persona

set of *data elements* (3.26) and their values by which a *Person* (3.57) wishes to be known and thus identified in a *business transaction* (3.9)

[SOURCE: ISO/IEC 15944-1:2023, 3.51]

3.59 personal information

any information about an identifiable *individual* (3.38) that is recorded in any form, including electronically or on paper

EXAMPLE Recorded information about a person's religion, age, financial transactions, medical history, address, or blood type.

[SOURCE: ISO/IEC 15944-5:2008, 3.103]

3.60 Person identity Pi

combination of *persona* (3.58) information and *identifier* (3.37) used by a *Person* (3.57) in a *business transaction* (3.9)

[SOURCE: ISO/IEC 15944-1:2023, 3.51]

3.61 physical address

address (3.1) that is used/recognized by a postal authority and/or courier service to deliver information item(s), material *object(s)* (3.48), or *business object(s)* (3.7) to a *contact* (3.22) at either an actual *address* or a pick-up point *address*, (e.g., P.O. Box, rural route, etc.)

[SOURCE: ISO/IEC 15944-2:2015, 3.80]

3.62

privacy protection

set of *external constraints* (3.32) of a *jurisdictional domain* (3.43) pertaining to *recorded information* (3.67) on or about an identifiable *individual* (3.38), i.e., *personal information* (3.59), with respect to the creation, collection, management, retention, access and use and/or distribution of such *recorded information* about that *individual* including its accuracy, timeliness, and relevancy

Note 1 to entry: Recorded information collected or created for a specific purpose on an identifiable individual, i.e., the explicitly shared goal of the business transaction involving an individual shall not be used for another purpose without the explicit and informed consent of the individual to whom the recorded information pertains.

Note 2 to entry: Privacy requirements include the right of an individual to be able to view the recorded information about him/her and to request corrections to the same in order to ensure that such recorded information is accurate and up-to-date.

Note 3 to entry: Where jurisdictional domains have legal requirements which override privacy protection requirements these must be specified, (e.g., national security, investigations by law enforcement agencies, etc.).

[SOURCE: ISO/IEC 15944-5:2008, 3.109]

3.63

process

series of actions or events taking place in a defined manner leading to the accomplishment of an expected result

[SOURCE: ISO/IEC 15944-1:2023, 3.53]

3.64

property

peculiarity common to all members of an *object class* (3.49)

[SOURCE: ISO/IEC 11179-1:2015, 3.3.21]

3.65

public administration

entity (3.31), i.e., a *Person* (3.57), which is an *organization* (3.54) and has the added *attribute* (3.3) of being authorized to act on behalf of a *regulator* (3.68)

[SOURCE: ISO/IEC 15944-1:2023, 3.54]

3.66

public policy

category of *external constraints* (3.32) of a *jurisdictional domain* (3.43) specified in the form of a right of an *individual* (3.38) or a requirement of an *organization* (3.54) and/or *public administration* (3.65) with respect to an *individual* pertaining to any exchange of *commitments* (3.17) among the parties concerned involving a good, service and/or right, including information management and interchange requirements

Note 1 to entry: Public policy requirements may apply to any one, all or combinations of the fundamental activities constituting a business transaction, i.e., planning, identification, negotiation, actualization and post-actualization. (See further 6.3 "Rules governing the process component" in ISO/IEC 15944-1:2023)

Note 2 to entry: It is up to each jurisdictional domain to determine whether or not the age of an individual qualifies a public policy requirement (e.g., those which specifically apply to an individual under the age of thirteen (13) as a "child", those which require an individual to have attained the age of adulthood (e.g., 18 years or 21 years of age) of an individual to be able to make commitments of a certain nature.

Note 3 to entry: Jurisdictional domains may have consumer protection or privacy requirements which apply specifically to individuals who are considered to be "children", "minors", etc. (e.g., those who have not reached their 18th or 21st birthday according to the rules of the applicable jurisdictional domain).

[SOURCE: ISO/IEC 15944-5:2008, 3.113]

3.67**recorded information**

any information that is recorded on or in a medium irrespective of form, recording medium or technology used, and in a manner allowing for storage and retrieval

Note 1 to entry: This is a generic definition and is independent of any ontology (e.g., those of “facts” versus “data” versus “information” versus “intelligence” versus “knowledge”, etc.).

Note 2 to entry: Through the use of the term “information,” all attributes of this term are inherited in this definition.

Note 3 to entry: This definition covers: (i) any form of recorded information, means of recording, and any medium on which information can be recorded; and, (ii) all types of recorded information, including all data types, instructions or software, databases, etc.

[SOURCE: ISO/IEC 15944-1:2023, 3.56]

3.68**regulator**

Person (3.57) who has authority to prescribe *external constraints* (3.32) which serve as principles, policies or *rules* (3.73) governing or prescribing the behaviour of *Persons* involved in a *business transaction* (3.9) as well as the provisioning of goods, services, and/or rights interchanged

[SOURCE: ISO/IEC 15944-1:2023, 3.59]

3.69**resource flow**

association between an economic event and an economic resource

Note 1 to entry: A common example would be a resource-flow between some inventory and the shipment that caused control of that inventory to flow from one *Person* to another.

[SOURCE: ISO/IEC 15944-4:2015, 3.58]

3.70**responsibility**

association between *Persons* (3.57) where one is responsible to the other or between a *Person* and an organization *Person* as assigned by that *Person*

Note 1 to entry: Subtypes of *Persons* include individuals, organizations, and public administrations. An “individual” is non-divisible; but organizations and public administrations are, and as such will assign specific responsibilities to organization *Persons*. (See further ISO/IEC 15944-1:2023, 6.2.7 and Figure 17)

[SOURCE: ISO/IEC 15944-4:2015, 3.59]

3.71**retention period**

length of time for which *data* (3.24) on a *data medium* (3.46) is to be preserved

[SOURCE: ISO/IEC 2382:2015, 2125629]

3.72**role**

specification which models an external intended behaviour (as allowed within a scenario) of an *Open-ed party* (3.51)

[SOURCE: ISO/IEC 14662:2010, 3.25]

3.73

rule

statement governing conduct, procedure, conditions and relations

Note 1 to entry: Rules specify conditions that must be complied with. These may include relations among objects and their attributes.

Note 2 to entry: Rules are of a mandatory or conditional nature.

Note 3 to entry: In Open-edi, rules formally specify the commitment(s) and role(s) of the parties involved and the expected behaviour(s) of the parties involved as seen by other parties involved in (electronic) business transactions. Such rules are applied to: - content of the information flows in the form of precise and computer-processable meaning, i.e., the semantics of data; and- the order and behaviour of the information flows themselves.

Note 4 to entry: Rules must be clear and explicit enough to be understood by all parties to a business transaction. Rules also must be capable of being able to be specified using a using a Formal Description Technique(s) (FDTs).

EXAMPLE A current and widely used FDT is “Unified Modelling Language (UML)”.

[SOURCE: ISO/IEC 15944-2:2015, 3.101]

3.74

Rulebase

pre-established set of *rules* ([3.73](#)) which inter-work and which together form an autonomous whole

Note 1 to entry: One considers a rulebase to be to rules as database is to data.

[SOURCE: ISO/IEC 15944-2:2015, 3.102]

3.75

scenario attribute

formal specification of information, relevant to an *Open-edi scenario* ([3.52](#)) as a whole, which is neither specific to *roles* ([3.72](#)) nor to *Information Bundles* ([3.41](#))

[SOURCE: ISO/IEC 14662:2010, 3.26]

3.76

scenario component

one of the three fundamental elements of a scenario, namely *role* ([3.72](#)), *information bundle* ([3.41](#)), and *Semantic Component* ([3.78](#))

[SOURCE: ISO/IEC 15944-2:2015, 3.104]

3.77

seller

Person ([3.57](#)) who aims to hand over voluntarily or in response to a demand a good, service and/or right to another *Person* and in return receives an acceptable equivalent value, usually in money, for the good, service and/or right provided

[SOURCE: ISO/IEC 15944-1:2023, 3.62]

3.78

Semantic Component

SC

unit of *recorded information* ([3.67](#)) *unambiguously* ([3.84](#)) defined in the context of the *business* ([3.4](#)) goal of the *business transaction* ([3.9](#))

Note 1 to entry: A SC may be atomic or composed of other SCs.

[SOURCE: ISO/IEC 14662:2010, 3.27]

3.79**set**

assembly of *objects* (3.48) or *concepts* (3.18) considered as a whole

Note 1 to entry: This is adapted from ISO 5127:2017, 3.1.1.09.

[SOURCE: ISO/IEC 15944-7:2009, 3.13]

3.80**set of recorded information****SRI**

recorded information (3.67) of an *organization* (3.54) or *public administration* (3.65), which is under the control of the same and which is treated as a unit in its information life cycle

Note 1 to entry: A SRI can be a physical or digital document, a record, a file, etc., that can be read, perceived or heard by a person or computer system or similar device.

Note 2 to entry: A SRI is a unit of recorded information that is unambiguously defined in the context of the business goals of the organization, i.e., a semantic component.

Note 3 to entry: A SRI can be self-standing (atomic), or a SRI can consist of a bundling of two or more SRIs into another “new” SRI. Both types can exist simultaneously within the information management systems of an organization.

[SOURCE: ISO/IEC 15944-5:2008, 3.137]

3.81**standard**

documented agreement containing technical specifications or other precise criteria to be used consistently as *rules* (3.73), guidelines, or definitions of characteristics, to ensure that materials, products, *processes* (3.63) and services are fit for their purpose

Note 1 to entry: This is the generic definition of “standard” of the ISO and IEC (and found in the ISO/IEC JTC1 Directives, Part 1, Section 2.5:1998). (See also ISO/IEC Guide 2:2004 (1.7))

[SOURCE: ISO/IEC 15944-1:2023, 3.64]

3.82**traceability data**

specified set(s) of *recorded information (SRIs)* (3.80) of a *business transaction traceability (BTT)* (3.12) nature which is required to be included in the modelling of a *business transaction* (3.9) via an *Open-edition scenario* (3.52)

Note 1 to entry: Sets of recorded information (SRIs) used as Semantic Components (SCs) and/or Information Bundles (Bs) in modelling a business transaction may also serve as traceability data. If so, they also need to be identified and tagged as such in addressing traceability requirements.

Note 2 to entry: Traceability data serves as evidence in support of traceability requirements.

3.83**traceable commitment**

any aspect of *commitment(s)* (3.17) forming part of a *business transaction* (3.9) which is required to be traced based on agreed upon *internal constraints* (3.42) for that *business transaction* and/or on *external constraints* (3.32), including those of legal traceability requirements of applicable *jurisdictional domains* (3.43) invoked by the nature of the *business transaction*

3.84**unambiguous**

level of certainty and explicitness required in the completeness of the semantics of the *recorded information* (3.67) interchanged appropriate to the goal of a *business transaction* (3.9)

[SOURCE: ISO/IEC 15944-1:2023, 3.66]

4 Abbreviated terms

BOV	Business Operational View
BTE	Business Transaction Entity
BTI	Business Transaction Identifier
BTT	Business Transaction Traceability
DOI	Digital Object Identifier
FDT	Formal Description Technique
FSV	Functional Service View
IB	Information Bundle
OeRI	Open-edi Registry Item
OeS	Open-edi Scenario
OID	Object Identifier
Pi	Person identity
RTI	Returnable Transport Item
SC	Semantic Component
SRI	Set of Recorded Information
UN/CPC	United Nations/Central Product Classification
WCO/HS	World Customs Organization/Harmonized System

5 Principles and assumptions

5.1 Overview

As a high-level generalization of business transactions among parties, Open-edi by its definition in this document incorporates the constraints imposed by international or national laws and regulations from various jurisdictional domains. Business transactions in practice are presupposed to fully comply with those laws and regulations. In order to achieve this goal, applications should implement all rules and guidelines specified in ISO/IEC 15944 series. Among these, human interface equivalents (HIEs) shall be used to ensure semantic unambiguity internationally of the concepts when applying this document. See [Annex A](#) for the HIEs for concepts used in this document.

To ensure systematic quality control and information retrieval in business transactions, whether based on IT systems or not, information about certain BTEs needs to be recorded and traceable. This requirement is specified in normative documents including international standards and specifications (See [Annex E](#) for some of the sample standards), or in international or national laws, regulations and other official mandatory documents. (See [Annex G](#) for some of the sample regulations.) This document considers these types of requirements as an external constraint to an Open-edi transaction and identifies those relevant principles in this [Clause 5](#).

These principles, emerged from external constraints, may be implemented as internal constraints mutually agreed to by parties to a business transaction.

5.2 Important Open-edl characteristics that provide support for traceability

As specified in ISO/IEC 15944-1, Open-edl has six characteristics; they are:

- a) actions based upon following predefined rules;
- b) commitment of the parties involved;
- c) communications among parties are automated;
- d) parties control and maintain their states;
- e) parties act autonomously;
- f) multiple simultaneous transactions can be supported.

Of these six characteristics, three provide support for traceability in business transactions; namely: a), b), and d).

1) Actions based upon predefined rules

In addition to specifications in ISO/IEC 15944-1:2023, 5.1,

On the whole for a business transaction, the number of predefined rules may be limited and simple. However, the inter-workings of the rules do allow for many different instantiations of a scenario.⁵⁾

The ability to trace information in an Open-edl implementation may be achieved through several means, (e.g., the inner rules of parties, the design of IT systems executing business transactions, the agreements among parties, etc.). When traceability is required in a business transaction, there is a need to follow documented processes that provide the evidence needed to prove traceability. The nature of Open-edl business transaction being based on rules, etc., ensures that evidence can be followed.

Parties to a business transaction shall decide on the common level of traceable commitment, and for this common level shall decide the set of consistent traceability data to be recorded. Rules or guidelines generated through these efforts shall be adopted as part of the agreement among parties.

2) Commitment of the parties involved

It is the obligation of parties to a business transaction to ensure that their products, services or rights are enabled for traceability, (e.g., containing necessary data, with specific type of packaging, etc). This is especially important where the parties making commitments in a business transaction are subject to external constraints.

Rule 01:

Traceability requirements shall be incorporated by all parties making commitments in a business transaction where external constraints apply.

On the whole parties to a business transaction are free to decide in modelling a scenario(s) for that business transaction whether or not to include traceability requirements, i.e., based on applicable internal constraints. However, the nature of the business transaction being modelled may invoke external constraints of applicable jurisdictional domains which include traceability requirements.

3) Parties control and maintain their state

The states of business transactions are represented by a set of data elements generated at various stages of a business transaction. Data elements for identification of BTEs, time, and address play key roles in the ability to perform a traceable commitment. Each party is responsible for the traceable commitment exchanged with other parties and controls and maintains the data elements they have

⁵⁾ The analogy here is to the rules covering a game where the simplest set of rules may well lead to multiple and very different instantiations, e.g., the game of wei (Chinese), igo (Japanese), go (English).

the right or interest to archive. The whole set of data elements controlled and maintained by parties enables the complete business transaction traceability.

5.3 Principles for traceability

5.3.1 Overview of the principles

Traceability is one feature that the development of Open-edi scenarios and the rules for specifying the same shall support when required by the external requirements of jurisdictional domains. Achievement of traceability objectives requires preciseness in the specification of detailed sets of recorded information (SRIs) by implementers, doing so in a manner which supports traceability principles. The four traceability principles specified in this document shall be considered prior to all other issues in order to facilitate implementation.

5.3.2 Traceability principle 1: Unambiguous identification

BTEs which may require traceability include Persons [via their specified Person identity (Pi)] as parties to the business transaction, and identities of goods, services, and/or rights which form the goal of the business transaction. Unambiguous identification of Person, goods, services, rights business transaction, etc., provides certainty and precision in tracking these entities, and thus form part of the commitments made by parties.

Rule 02

Any and all the types of BTEs which require traceability shall be unambiguously identified.

For an Open-edi application, those identifications include but are not limited to:

- a) the identifications for Person and their persona, with the associated signatures (See ISO/IEC 15944-1:2023, 6.2);
- b) the identifications for business transaction, through the use of Business Transaction Identifiers (BTIs) (See ISO/IEC 15944-5:2008, 6.6.4.4 for a general specification for the BTI);
- c) the identifications for various other types of business transaction entities (BTEs) including goods, services and rights.

Rule 03

The unambiguous identification of all BTEs shall be linked to the business transaction identifier (BTI) of that instantiated business transaction.

The identifiers of these entities and the identifier to the business transaction shall provide reference to each other. This does not mean that in the coding structure of identifiers of entities shall contain the identifier of the business transaction, and vice versa.

5.3.3 Traceability principle 2: Record-keeping

Rule 04

Irrespective of the possibility that all information pertaining to a business transaction may not be recorded, all traceability data shall be recorded.

Existing commercial and legal frameworks for business transactions allow for and use both information which is recorded and that which is not, i.e., is known to and used by natural persons in making commitments but not (yet) recorded. For recorded information, some is required by Open-edi standards in general to be created, used and interchanged among parties. However, all data specifically related to traceability shall be recorded, i.e., ID of BTEs, time and location, and other data that is necessary for a complete and accurate representation of what needs to be tracked.

Rule 05

Rules and procedures for the systematic record keeping of traceability data that is recorded shall be established, maintained and implemented.

Traceability data shall be recorded, i.e., established and maintained to provide evidence of conformity to requirements as well as ensuring the effective operation of Open-edi implementations. A procedure(s) shall be established to define the controls needed for the identification, storage, protection, retrieval, retention time and disposition of the traceability data.

The implementation of the record-keeping can be a collaboration of parties, (e.g., a real property registration system that keeps the records of selling and buying of real estate). The setup of these implementations also requires the sharing among parties of traceability data, which may be the private property of parties. Thus, to enable such implementations, it is necessary that the parties also agree to principle 4 in this subclause.

5.3.4 Traceability principle 3: Defined level of granularity

Rule 06

All traceability commitments shall be predefined, as well as their associated labels of granularity, and shall be decided and agreed upon by the parties to the business transaction.

In business transactions, traceable commitments can be of a large unit or a small unit, based on physical characteristics and other requirements of parties. The identification of a traceable commitment at a certain level of granularity is the choice of the parties according to their requirements. On one hand, this choice reflects the parties' required risk profile and on the other hand, it represents the unit of product physically being handled.

5.3.5 Traceability principle 4: Ensuring traceability among parties

Rule 07

Parties to a business transaction shall ensure that traceability data is created, maintained and interchanged among all parties when and where required.

Every party, to an instantiated business transaction, can decide how to implement internal facilities supporting traceability (e.g., in the form of an information system) as part of their internal behaviour. However, it is essential that the parties to a business transaction are able to collect and record traceability data in an accurate and timely manner, and share the necessary traceability data with other parties. To support traceability, the Open-edi implementation shall provide necessary facilities for parties to share these traceability data, (e.g., by mutual agreement).

5.3.6 Traceability principle 5: Precision in temporal and/or location referencing

Rule 08

The time and location shall be precisely defined and referenced in a business transaction when traceability requirements apply.

It is often the case that the schema for describing the time and/or location used in a business transaction is understood only by a limited number of parties to the business transaction for a limited period. For example, the use of an address without the name of the city, the use of a time without the information of the year, and the use of a date with the format of XX-XX-XX without indicating the which part is the year, month or date in its schema. However, when traceability requirements apply, other parties may involve and the record shall be kept and understood across years.

5.4 Two types of tracking

For those purposes defined by regulations (e.g., human health and safety), traceability is needed in businesses of many sectors. The basic objective is to ensure that the information about the goods, service, and/or right pertaining to an instantiated business either is available either about its history. Thus, parties to a business transaction always practice the tracking to obtain the traceability data. Two types of practices of tracking exist:

- backward tracking, which is initiated by the end user knowing the information of product application but not the history;
- forward tracking, which initiated by the initial responsible manufacturer or importer, knowing the information about the product history but not the application.

The governments/public administrations may initiate either of these two types of tracking.

6 Traceability reference model

6.1 General model

In ISO/IEC 14662 and other parts of the ISO/IEC 15944 series, BTEs are specified mostly in their “what is” aspects, and what there should be with regard to external constraints of a business transaction for the scenario and its components.

In this document, the “what is” aspects of traceability in a business transaction are specified (Many concepts are adapted from GS1 glossary, see [Annex B](#) for an introduction) and specifically in this clause the BTEs will have more subtypes in support of traceability requirements.

When traceability needs to be supported by a scenario, the set of commitments pertaining to the scenario shall be considered as either a traceable commitment, or a non-traceable commitment. In a business transaction, among all different types of BTEs, there are also quite many BTEs other than the commitment, that need to be considered to support the traceability requirements. In this document, these are called non-commitment entities which includes Person, business event, and non-commitment item. The non-commitment entities do not belong to commitment, Person or business event in a business transaction, but should be considered in support of the traceability requirements. [Figure 3](#) gives an illustration of the relations of these concepts and existing concepts defined in other parts of ISO/IEC 15944 series.

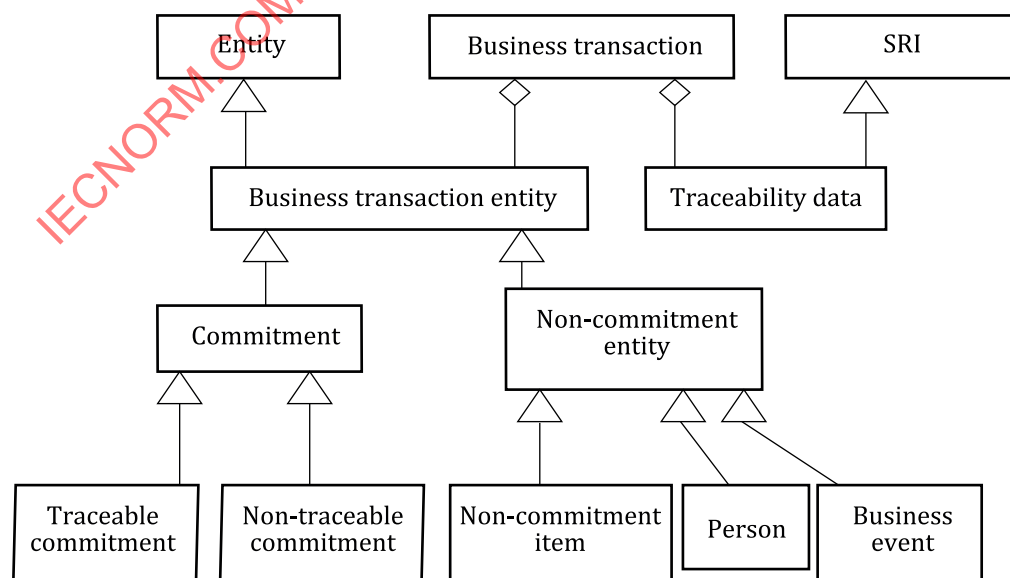


Figure 3 — Model of traceability concepts

For an example of the application of the traceability model to form a traceability framework, see [Annex F](#).

6.2 Traceability data in business transaction

6.2.1 Predefined and structured traceability data

As specified in [Clause 5](#), record keeping is one of the key principles to traceability. Parties to Open-edi treat their sets of recorded information as separate units in their information life cycle. (See ISO/IEC 15944-1:2023, 6.4.2)

Rule 09

Traceability data are required to be structured and have predefined information bundles (and semantic components).

In the ISO/IEC 15944 series, traceability data are required to be structured and have predefined contents, as shown in [Figure 4](#), which is adapted from ISO/IEC 15944-1:2023, Figure 22. In this document, traceability data in business transactions that are required specifically by the external constraints of traceability need to be structured to support traceability processes and shall have predefined contents to support traceability.

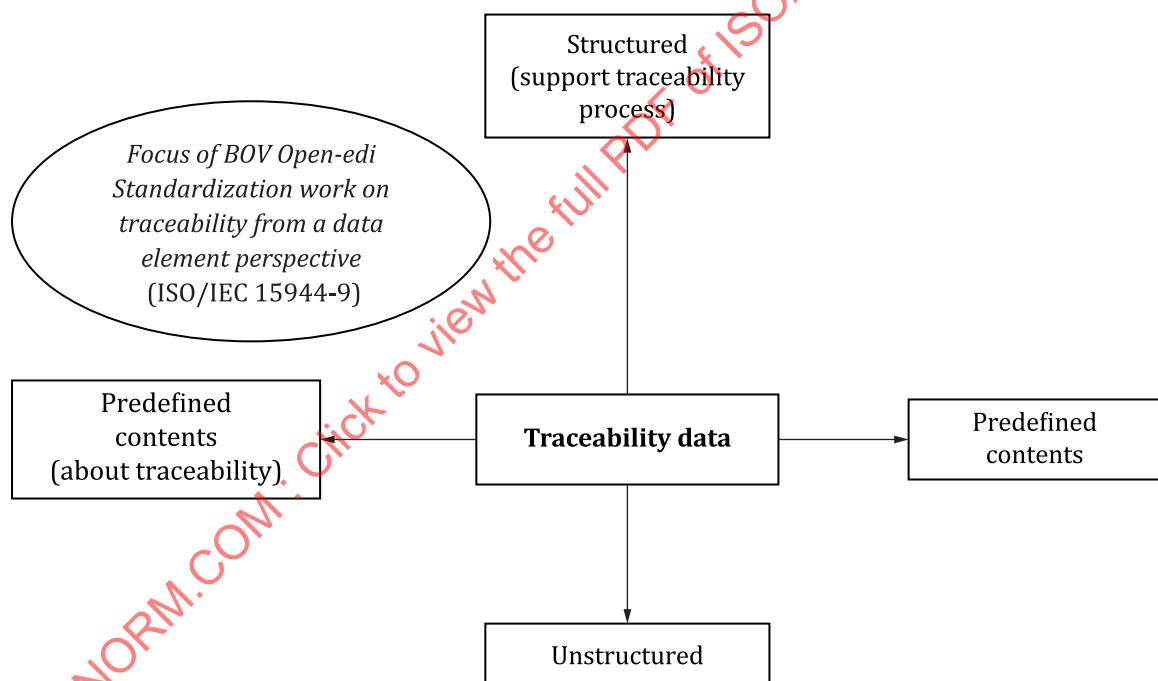


Figure 4 — Focus of BOV Open-edi standardization work required by traceability — Predefined and structured traceability data

6.2.2 Predefined contents of traceability data

As defined in [Clause 3](#), traceability data pertains to SRI(s) about traceable commitments in business transactions and serves as evidence in support of traceability requirements. SRI(s) with contents describing the history, application or location of traceable commitments is essential for the purpose of traceability.

Rule 10

The SRI(s) in support of traceability shall include data semantics representing traceable commitments, Person, non-commitment item, event and identification of the state of the business transaction at any point in time.

Guideline 10G1

Information bundles and semantic components already specified in a scenario component, (e.g., business transaction identifier (BTI)) may also be specified/used as traceability data.

The final goal for the use of traceability data is to support decision making on the issues of liability, product recall, improvement, etc. These operations always require detailed recorded information regarding the commitment exchange, including time, location, Person, product, or even technical issues. The identification of the state of business transaction at any point in time is also necessary, especially the states in post-actualization phase.

One example for the non-commitment item is the returnable transport item (RTI) as defined in ISO/IEC 15459-5.

The contents of traceability data are shown in Figure 5. Figure 5 illustrates that the contents of traceability data in a business transaction include:

- the identification and description of commitments;
- the identification and description of Persons associated with the commitments in an event;
- the identification and description of “from”, “to”, “inter” locations associated with the commitments in an event;
- the identification and description of event the commitments are involved in, the time of the start and end of the event the commitments are involved in;
- the identification and description of non-commitment items involved in the event;
- the identification of the state of the business transaction.

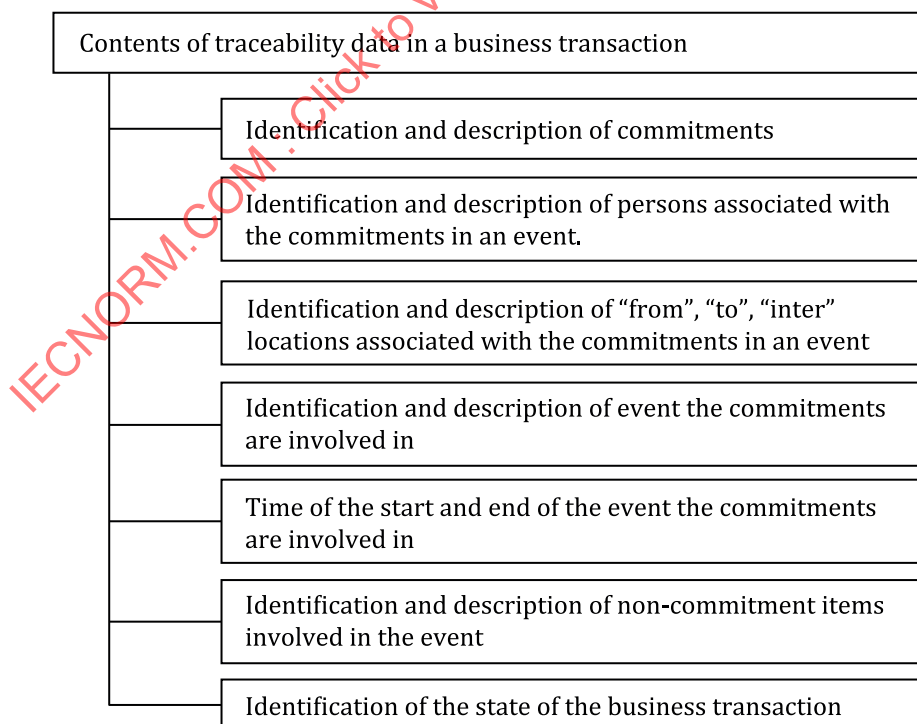


Figure 5 — Content model for traceability in a business transaction

Rule 11

The SRI(s) in support of traceability needs to be semantically complete to be able to support the requirements of traceability.

In addition to information and description of traceable commitments, Person, event and entity, other information may also be mandated by legal requirements in a specific jurisdictional domain.

Rule 12

Traceability data need to be granularized to the level that satisfies the need to trace the history, application and/or location of the traceable commitments.

Time, location and descriptive information about the business transaction entity or business event are a mandatory part of traceability data in most cases. The data elements providing this information shall be structured and detailed to the degree that is needed, i.e., as IB(s) and/or SC(s) in support of an Open-edi scenario which supports traceability requirements.

Guideline 12G1

Traceability data in applications may be structured in the form of a compound data element consisting of data elements that are more generic and reusable, rather than the non-compound data element whose object class is specified by its attribute within the name of the data element.

For example, when representing the information of the number of times that a medical device used by a patient in a certain year, use several data elements of “name of patient”, “number of usages”, “year”, rather than to use the data element of “number of John’s usages of the device in 2011”.

6.3 General content of traceability data**6.3.1 General rules for identification of BTEs****Rule 13**

Within a single identification schema, “One to one” mapping between each identifier and each business transaction entity is required.

In a traceability context, identification serves as the mapping between the identifier and the business transaction entity. There may be BTEs in huge quantity and various types, or managed by various Persons. Thus, possibilities of redundant identifiers for BTEs always exist. In some cases, for example searching the descriptive information of the entity from a database by its identifier, the redundant identifiers for an entity do not cause any problem. However, in an Open-edi environment, which focuses on the commitment interchange, the identifier stands for the semantic meaning of the business transaction entity being identified, which shall be conformant to legal requirements.⁶⁾ The one identifier to many entities relation is not allowed in most cases for lack of traceability.⁷⁾

Rule 14

Persistent identification of BTEs and traceable commitments is needed. If a persistent ID is not provided, identification and time information for the identification schema shall be used in combination to achieve traceability.

A good practice for defining an identification schema is to make the identifier as stable as possible, irrespective of changes in the environment of the identified entity over time. However, in many cases

6) The name of the entity is important. For example, in Chinese taxation policy, the goods for agriculture have a low tax rate, while the goods for chemical industry have a high tax rate. Thus, the name and the identifier of the chemical fertilizer are important.

7) In practices, this does exist. Sometimes the identifier has a cost, for example the barcode, the manufacturers would like to buy a limited number of identifiers for their product. Different product types with the same price are very likely have the same identifier.

this is not technically possible. The combination of identifier and time information provides an optional solution for identifying an entity at a specific period of time.

6.3.2 Integration and interoperability of identification schema

As specified in 5.3.2, one of the principles for traceability is the unambiguous identification of BTEs. In order to have an unambiguous identification for products, different parties may assign different type of codes to products according to the business requirement of the party. Thus, a single entity may have many different codes. (For example, one bottle of wine has both EAN/UCC codes and product ID issued by the manufacturer.) These codes by nature are identifiers to BTEs, which may be in abstract form, i.e., generalized conceptually. (For example, codes for classes of goods, see Annex E). Therefore, the technical and management aspects of these codes are all called identification schema in this document, as shown in Figure 6.

In Figure 6, each identification represented by a circle consists of a set of identifiers that identify a certain range of BTEs. The identification that covers the widest range and may serve as the link among different identifications is called pivot identification in Figure 6. The range of an identification is decided by the business requirements and the physical characteristics of the BTEs, which is shown as two dimensions in Figure 6. Some of the ranges are overlapping with each other, while some are independent with each other. This situation in practice causes a “soup” of identifiers and it is always difficult to handle it for the parties to the business transaction. Thus, this subclause gives some rules and guidelines dealing with this issue.

By physical characteristics (individual, organization,
goods, time, location, etc.)

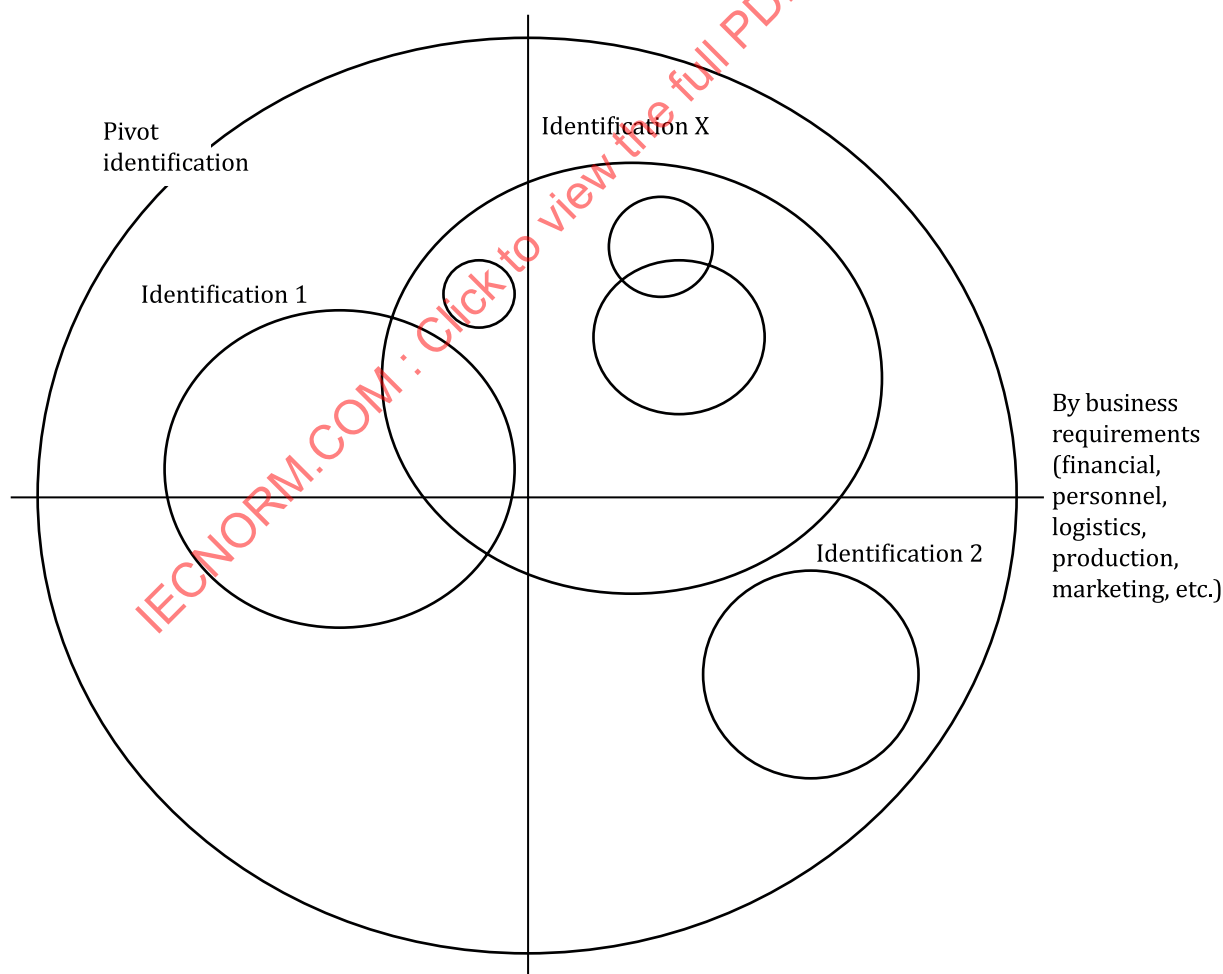


Figure 6 — Identification radar: What it covers

Rule 15

Parties shall take into consideration all existing identification schemas that are being used in business applications.

Each identification schema represents a business need, management or commercial of parties. This schema is associated with a group of data elements describing the special business need, which are managed by people who is responsible to address that business need. For example, the UN/CPC (Central Product Code) is mainly used for statistical purposes, while WCO/HS is mainly used for customs administration purposes, and they shall not be replaced by each other, although they are also adopted in various other applications.

Rule 16

An identification schema that specifies identifiers for a set of more granulized BTEs shall always be used in order to achieve interoperability among parties to a business transaction.

In business transactions, different identification schema is always used by parties, in which different classifications are often used to categorize BTEs. Thus, parties shall agree on a new identification schema that is interoperable to all parties' existing identification schemas. Such a new schema shall always be created by granulizing the entities in the existing schema owned by parties.

Guideline 16G1

A standard identification schema may always be used to provide interoperability among parties to a business transaction.

For example, identifiers for individuals specified by a national standard can be used for the natural person identification which is required for the traceability of a business transaction.

Rule 17

Each identification schema shall be associated with a description schema that is appropriate for the business purpose of the identifier itself.

One of the purposes for the using of an identifier designating an entity is to provide semantic unambiguity in referencing that entity. However, the semantics shall be provided through a set of data elements of description nature. Otherwise the identifier can only be used by itself with no association that is useful for the tracking of information that needs to know.

Guideline 17G1

The set of identifiers within an identification schema shall be conformant to the rules of coded domains defined in ISO/IEC 15944-10.

ISO/IEC 15944-10 provides the specification for coded domains that supports semantic unambiguity and IT-enablement. The use of coded domains to support identification of BTEs will greatly support the traceability of a business transaction.

Rule 18

The most widely recognized existing identification schema shall always be adopted, (e.g., as a national standard or an international standard) for one type of business transaction entity, where such an identification schema applies to the need of parties to a business transaction.

The widely recognized existing identification schema, either exists as a standard (international, national, etc.) or a de facto standard, reflects a majority interests of stake holders and is more stable over time. Adoption of these identification schemas will likely reduce the risk of incompatibility and non-interoperability of codes for interchange purpose.

6.3.3 Identification and description of traceable commitments and non-traceable commitments.

In business transactions, commitments can include traceable commitments and non-traceable commitments which are not required to trace, as shown in [Figure 7](#).

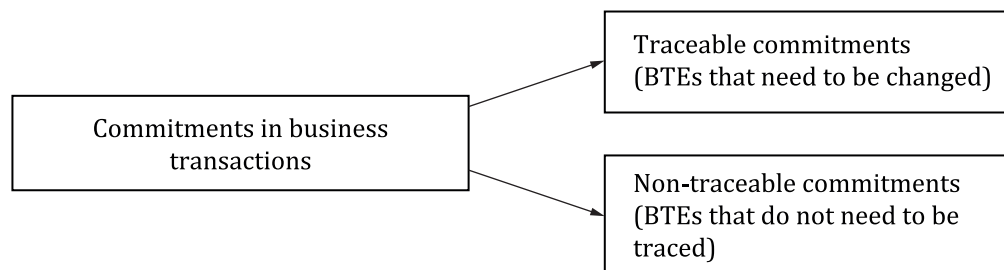


Figure 7 — Commitments including traceable and non-traceable commitments

Rule 19

Identification of traceable commitments at the appropriate level of granularity is needed based on costs of identification and performing the tracking of commitments, or required by regulations.

In many cases, the identification of traceable commitments granularity relates to product packaging. Smaller packaging always means less product recall and less risk, since it is often the case that products are recalled because of packaging defects rather than product defects.

Some regulations also may require the level of granularity of identification. For example, the level of identification of grouping of transport unit is required by a custom clearance need.

Rule 20

Identification of non-traceable commitments may be used for traceability.

Non-traceable commitments are BTEs that are not required to be traceable by legal requirements. However, at times, the traceable commitments are inseparable with non-traceable commitments in many cases. Sometimes, the information about traceable commitments cannot be retrieved without the information in an entity that is used together with the traceable commitments but not required to be traceable itself.

For example, when a cartoon book is sold to a buyer with a toy as a gift, and the book has a barcode while the gift has no identification, the barcode of the book may be used for the traceability of the toy, which is required to be traceable by a certain law.

Rule 21

All aspects of commitment in a business transaction which require traceability shall be identified and specified prior to the actualization phase of a business transaction.

Identification itself provides the unique relation between the symbol and the semantics it represents. The identifier itself may suggest a meaning (e.g., through the use of a composite identifier⁸⁾), but it is not possible for the identifier to provide all the necessary information needed for a business transaction or an action related to a business transaction (e.g., action required by traceability).

8) The ostensible meaning of an identifier may be completely unrelated to its actual use depending on a specific language context. For example, the ostensive descriptive identifier “gift_123” will be taken as designating a gift item by a speaker of English and as designating a poison by a speaker of German or Swedish.

6.3.4 Rules governing unambiguous identification of Person in support of traceability requirements

Rule 22

With respect to legal traceability requirements, a unique identifier for Person is required and shall be used together with the persona used by the Person.

As specified in [6.2.1](#), to obtain the party's identity is the minimum requirement for traceability. As specified by ISO/IEC 15944-1, a Person has one or more personas (and one or more associated identifiers with each). Which persona and associated identifiers are to be used depends on the contexts of different business transactions and governing rules. However, with respect to the role of a Person in a specific instance of a particular business transaction, a Person will use a single and unique combination of its persona and the associated identifier, i.e., as its "Person Identity" in an instantiated real world business transaction. The detailed explanation of Identification of Person and persona is stated in ISO/IEC 15944-1:2023, 6.2.3.

Guideline 22G1

Widely accepted identification schemas exist for identification of individual, organization and public administration.

Key identification schemas for Person generally accepted world-wide are described in ISO/IEC 15944-1:2023, Annex D.

6.3.5 Business event

6.3.5.1 General requirements on business event

By definition, a business event is an occurrence in time that parties to a business transaction wish to monitor or control. In Open-edi applications, Business events are described by the following recorded information, structured to support legal traceability requirements:

- a) identification of the business event;
- b) description of the business event;
- c) time of the business event;
- d) location of the business event.

A business event can either occur instantaneously or have duration. For a business event having duration, it will be possible to specify the duration using instantaneous beginning and ending events. [Figure 8](#) shows the information model for business event.

The example of an instantaneous event may be the signing of a contract in business transaction either in the form of signing on a paper contract document or in the form of clicking on a button in a computer interface agreeing to the terms and conditions of the business transaction.

The example of a duration event may be the transportation of goods from one location to another, which may also be reflected in e-Business systems.

In the [Figure 8](#), there are two types of business events:

- a) the instantaneous business event;
- b) the duration business event.

The duration business event can be composed of other duration business event or instantaneous business event. The instantaneous business event is composed of Person, Commitment, time and location. See [Annex C](#) for an introduction to time specification and [Annex D](#) for a location specification.

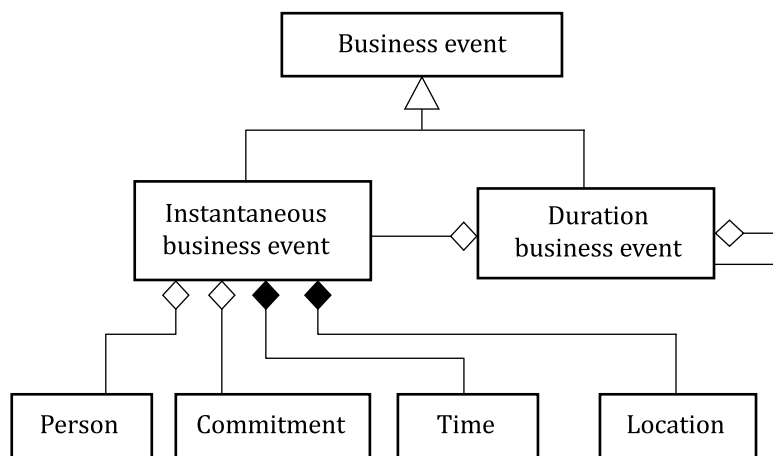


Figure 8 — Information model of business event

6.3.5.2 Requirements on temporal referencing

Rule 23

For well-defined traceability data, the temporal reference schema shall be specified and agreed on by parties to the business transaction during or at the end of the negotiation phase. (The default can be seen in [Annex C](#))

Temporal referencing information is one part of the business event. The business event may involve different parties to the business transaction and may be subject to different temporal reference schema. In order to have a consistent description of the temporal referencing information, parties to the business transaction shall agree on the specification of time no later than the negotiation phase.

Rule 24

External constraints may require specified levels of granularity of date/time referencing for particular sets of traceability data.

The levels of granularity for date/time referencing may well vary for differing sets of traceability data pertaining to a business transaction. However, in many cases the external constraints may require a specified level of granularity for date/time. For example, the manufacture dates of food.

6.3.5.3 Requirements on location referencing

Rule 25

For well-defined traceability data, the location of the good, service and/or right (in transit from seller to buyer) shall be clearly and unambiguously specified (or be specifiable as and when requested) as required by partners to a business transaction, as well as external constraints required by applicable jurisdictional domains.

Guideline 25G1

For identification and referencing, applicable jurisdictional domain(s), one should use the default approach found in ISO/IEC 15944-5:2008 Annexes D and E.

The description of a location shall be consistent among parties, so that the data about location could be valid and be used for traceability purpose. The description of a location may include the information for jurisdictional domain(s), the address, the coordinates of a site, etc.

7 Traceability requirements to business transaction components

7.1 Overview

Business transaction has three components, Person, data and process. This clause specifies the traceability requirements for all these components in general, and traceability requirements for these components separately.

7.2 General requirements

7.2.1 Key components of a business transaction

Rule 26

Traceability requirements apply to all three components of a business transaction, i.e., Person, process and data.

Traceability requirements apply to all the three components, with specifications of structured sets of recorded information for all BTEs, including Person, and specification of the business events occurring in the five phases of a business process. (See ISO/IEC 15944-1:2023, 6.3.)

7.2.2 Commitment exchange

Rule 27

Any SRIs pertaining to obligations, rights or responsibilities which are of a traceability nature shall be stated and exchanged among parties to a business transaction.

Commitment is the making or accepting of rights, obligations or responsibilities by a Person in a jurisdictional domain. Traceability is a legal requirement of a jurisdictional domain that needs to be applied by the Person that is responsible for the goods, services, and/or rights. Parties usually do not have the right to control or archive information on the goods, services and/or rights they do not own. Thus, traceability data is exchanged among parties to the business transaction as part of the commitment exchanged.

7.3 Traceability requirements on Person

7.3.1 General requirements on Person

Rule 28

When required by regulations, the minimum objective needed by traceability requirement for most business transactions is to decide the identity of the Person who acts as a buyer, a seller or a regulator, and which can be held accountable for the commitment(s) in the business transaction.

Commitments are exchanged among parties to a business transaction. As part of the commitment, responsibility for traceability transfers from Person to Person. A Person has the right or obligation to control its internal process and manage the information produced. Traceability is the ability to trace information not only about the Person's identity, about also any other information that needs to be known. However, it may be illegal to know the unshared information controlled and by another Person. In many regulations that defines traceability, not all Persons in the chain of distribution need to provide the detailed information of product, except those Persons who are most responsible for the quality of the product, (e.g., the manufacturer).

It is also the fact that the same Person may decide to use a particular Person identity in a certain business transaction. The principles, associated rules and guidelines can be seen in ISO/IEC 15944-1:2023, 6.2.3.

7.3.2 Requirements on a regulator

Rule 29

Where more than one regulator is involved in a business transaction, the regulators shall take measures to establish the rules and procedures of cooperation necessary for the traceability of the commitments exchanged in the business transaction.

A key purpose of ISO/IEC 15944 series is to support applicable legal frameworks. Depending on the nature of the goods, services, and/or rights being exchanged by the seller as the goal of an instantiated business transaction, there may be more than one regulator involved from more than one jurisdictional domain. As such, the regulators shall take necessary action for the establishment of the rules and procedures of cooperation among themselves that are required for the traceability of the commitments exchanged in the business transaction.

7.3.3 Requirements on a buyer

Rule 30

The unambiguous identification of a Person in its role as a buyer (in a particular business transaction) is necessary when forward tracking of a commitment.

As specified in ISO/IEC 15944-1:2023, D.5.2, identification of a Person as buyer is not always necessary in (electronic) business transactions. However, when the ability to forward track a commitment is required, i.e. traceability regulations require the manufacturer to know the location of its product, the identification of a Person as a buyer is necessary.

7.3.4 Requirements on Person as an individual — Privacy protection and individual accessibility requirements

Rule 31

The nature of a business transaction may invoke external constraints of an applicable jurisdictional domain which require the buyer to provide specified personal information either to the seller, a regulator or both.

The traceability data may include personal information of an individual as the buyer. For example, the delivery address is the home address of the individual. ISO/IEC 15944-8:2012 specifies the detailed privacy protection requirements for business transactions.

Rule 32

Personal information on a buyer, required to be provided based on external constraints required for traceability purposes shall not be shared with other parties to that business transaction without the express consent of that individual (or if so required by the applicable external constraint(s) of a jurisdictional domain).

An individual as a buyer may refuse to share some or all of his/her personal information with parties to a business transaction where the individual deems such personal information to be irrelevant or non-essential to the traceability of a commitment. However, where external constraints of a legal or regulatory nature by applicable jurisdictional domain(s) require traceability data of a personal information nature, this shall be provided by the buyer as an individual.

Rule 33

Part of the traceability data that is used by an individual shall have the representation that supports individual accessibility.

By definition, individual accessibility is the set of external constraints of a jurisdictional domain as rights of an individual with disabilities to be able to use IT Systems at the human, i.e., user interface, and the concomitant obligation of a seller to provide such adaptive technologies. Traceability data may be

directly used by an individual or through an IT tool, (e.g., product ID Arabic numeric codes or barcodes). Both of these shall also be presented in the form required by the individual accessibility requirements.

7.4 Traceability requirements on process

Rule 34

Traceability requirements affect all five phases of commitment exchange in a business transaction.

The commitment exchanged and its characteristics in a business transaction are considered at all five stages of business transaction to support decision making. Thus, in all five phases of planning, identification, negotiation, actualization and post actualization, the traceability requirement shall be considered.

In the planning phase, the seller shall make available that the goods, service or rights is traceable for its own benefits or required by labelling regulations. When searching among potential suppliers of a good, service and/or right, the buyer always considers which good, service and/or right has the functionalities of traceability.

In the identification phase, the buyer and seller establish the one-to-one linkage, and information bundles about traceability will be exchanged.

In the negotiation phase, the terms and conditions need to be mutually agreed to by the buyer and the seller to form the contract. These terms and conditions shall cover the traceability aspects.

In the actualization phase, the goods, service or rights shall be delivered with traceability, if required. The traceable commitments, Persons need to be identified.

In the post-actualization phase, traceability may be considered by the buyer, seller or regulator in case of need to track the history or application of the traceable commitment.

Rule 35

Traceability requirements are applied differently to different phases based on the nature of the traceability requirements be internal constraints or external constraints.

Traceability requirements which are of an internal constraints nature need to be specified and agreed to by the parties to a business transaction as part of both the process and data components in an Open-edi scenario before or at the negotiation phase and include those which apply to the actualization phase, and where applicable, to the post-actualization phase.

Traceability requirements which are of an external constraints nature shall be: (1) specified during the planning or identification phase of the process component; and, (2) be finalized during the negotiation phase. This may include obtaining sets of recorded information in the form of registrations, identifiers and/or approval from applicable regulatory authorities prior to the actualization of the instantiation of a business transaction.

Rule 36

In post actualization phase, the identity of the Person as the warranty holder needs to be reassured against the Person as the buyer, otherwise it shall be identified and the relevant traceability data of that Person need to be recorded.

At times, the Person who is the warranty holder for a good, service and/or right, may not be the Person who was the buyer of the same. Thus, while it is common that a warranty applies to a purchased good, that the seller's warranty and association warranty ID and registration is assigned to the Person completing the warranty document. One reason for this practice is that the good may be of the nature of a gift and the gift recipient thus becomes the warranty holder.

7.5 Traceability requirements on data

7.5.1 Overview

Data is the representation of information including Person, process and other BTEs. Traceability requirements on Person and process will also produce requirements to data. Since the data interchanged and/or managed are always considered in business transactions, the following subclauses identify a number of issues related to data that need to be considered together with traceability issues.

7.5.2 Traceability data retention

Rule 37

Traceability data shall be retained for a minimum period of time as required by external constraints or as mutually agreed to by the parties to the business transaction.

For example, in US medical device tracking practices, the tracking records must be maintained for the useful life of the device, even if a patient is lost to follow up. In Scotland, the record for cattle identification must be kept by farms for 10 years and for three years in any other cases (e.g., markets).

7.5.3 State changes

Rule 38

When the value of information bundle is required by traceability requirements, its previous value shall not be expunged, and date/time stamp for the change shall be stored.

As specified in ISO/IEC 15944-5:2008, 6.6.4.3, state change refer to the changes of values of information bundles, and these form a configuration of a scenario. When the semantic components is subject to traceability requirements, its value change type shall not be set to "00", "01", "02" and "11" as specified in ISO/IEC 15944-5:2008, Table 6.

7.5.4 Business transaction ID

Rule 39

The business transaction identifier (BTI), which is a part of the traceability data, shall be assigned by the seller or regulator.

As specified in ISO/IEC 15944-5:2008, 6.6.4.4, BTI is the identifier assigned by a seller or a regulator to an instantiated business transaction among the Persons involved. As specified in 5.3.2, all BTEs which require traceability shall be unambiguously identified, and those identifiers shall be linked to the BTI of that instantiated business transaction.

7.5.5 Unambiguous traceability data

Rule 40

Wherever possible, the identification schema enabling unique identifiers of BTEs supported by a standard shall be used to support unambiguousness of traceability data.

In practices, a de facto identification of entities is always used with a certain scope, (e.g., using the name of the entity in a natural language). However, commitment exchange requires BTEs to be identified in order to support the ensuring of responsibility or liability, and a high data quality of identification which specifies unique and persistence identifiers shall be reached. ISO/IEC 15944-10 provides the specification for such identification schema.

Guideline 40G1

Precision in natural language expressions can provide support to traceability.

Usually, unambiguousness of data is improved by a higher level of granularity and better structure. When data is less granular and less structured, as is often the case, ambiguity can be reduced through semantic precision in use of the natural language. Thus, buyers and sellers may wish to assign personnel with better language skills to tasks involving interactions with business systems.

7.5.6 Traceability data sharing

Rule 41

Traceability data shall be exposed to legally eligible parties who request to have it.

The recorded information about a commitment exchange shall be given to the party that requests and has the right to have it based on traceability regulations and/or on a combination of external constraints and what is mutually agreed to by the parties to the commitment exchange.

It is not necessary for all parties to store and share all information relating to business transactions, but they shall be able to access relevant information and share it subject to external legal constraints. Confidentiality and intellectual property rights of a Person shall be considered, and in the case of Person as an individual who plays the role of a buyer, the privacy requirements of business transactions specified in ISO/IEC 15944-8 shall also be considered.

Rule 42

Personal information about an individual who is a party to a business transaction shall only be accessed and used in compliance with applicable legal requirements and/or with the informed consent of that individual.

Rule 43

With respect to collecting, maintaining, interchanging, accessing, disclosing, etc., of personal information of a buyer, the rules and guidelines of ISO/IEC 15944-8 "privacy protection" apply.

Whether traceability data contains personal information or not impacts the choice of solutions used to record the information and conduct a trace action. If the traceability data contains personal information, access and use of that personal information may violate laws or regulations of privacy protection nature. In some cases, there may also be laws or regulations that require an individual to disclose his or her personal information to a limited scope. Also, the individual must always also agree to such a personal information disclosure.

7.5.7 Master data (in a business transaction)

Rule 44

Traceability data shall incorporate as much as possible the master data (in a business transaction).

Since master data (in a business transaction) is relatively constant across time, not being subject to frequent change, is often conformant to widely adopted data standard or specifications, and is accessed and/or used by multiple business processes and IT system applications, master data has a much higher data quality. When traceability is required, master data is always used as part of the traceability data.

8 Open-edi collaboration space and traceability

8.1 Overview

The Open-edi collaboration space is specified in ISO/IEC 15944-4 and further described in ISO/IEC 15944-5:2008, Clause 5. The collaboration space with internal constraints only deals with the roles of a Person as a buyer and a seller. The collaboration space with both internal and external constraints deals with the added role of a regulator.

As also explained in ISO/IEC 15944-8:2012, 6.2, the purpose of business process modelling in an Open-edi context is to model the recorded information exchanged among the two primary Persons to a business transaction (and any others). In this context, there are two roles of Person, one assuming the role of “buyer” and the other the role of “seller”, and the focus is on the information bundles that are being interchanged among these two primary partners in the business transaction. From an Open-edi perspective, the collaboration space is a view of transactions that take place outside the internal control space of the Persons who are parties to a business transaction. This view sees both interchanges of information, from seller to buyer and buyer to seller, as conceptually similar. Such a perspective is quite different from that of the view taken inside an organization.

When the traceability requirements apply to a business transaction, the business process modelling is still consistent with the framework of the collaboration space but is affected on the detailed level.

8.2 Basic Open-edi collaboration space: Independent view of traceability

In 5.2, tracking is classified as backward tracking and forward tracking regarding the tracking actions in practice. However, this is the internal view of the buyer or the seller. For the buyer, traceability is the ability to perform backward tracking, while for the seller, traceability is the ability to perform forward tracking. However, if the view independent from the buyer and seller is adopted, it is the traceability of commitment, which requires identifying BTEs and the associated information for both the seller and the buyer. See ISO/IEC 15944-4:2015, Figure 2 for the illustration of independent view of the BTEs in a business transaction.

8.3 Collaboration space: Roles of buyer, seller and regulator

As specified in detail in ISO/IEC 15944-5:2008, 5.2, the collaboration space between a buyer and seller is the activities of commitment exchange between them. When considering internal constraints only, there is no regulator, and when considering the external constraints, the regulator is added. When both the buyer and the seller agree to use a third party, then the third party is added to the collaboration space. This is illustrated in Figure 9 without the dotted lines and the italic text. The use of dotted lines and italic text in Figure 9 indicates the added traceability requirements to various aspects of collaboration space.

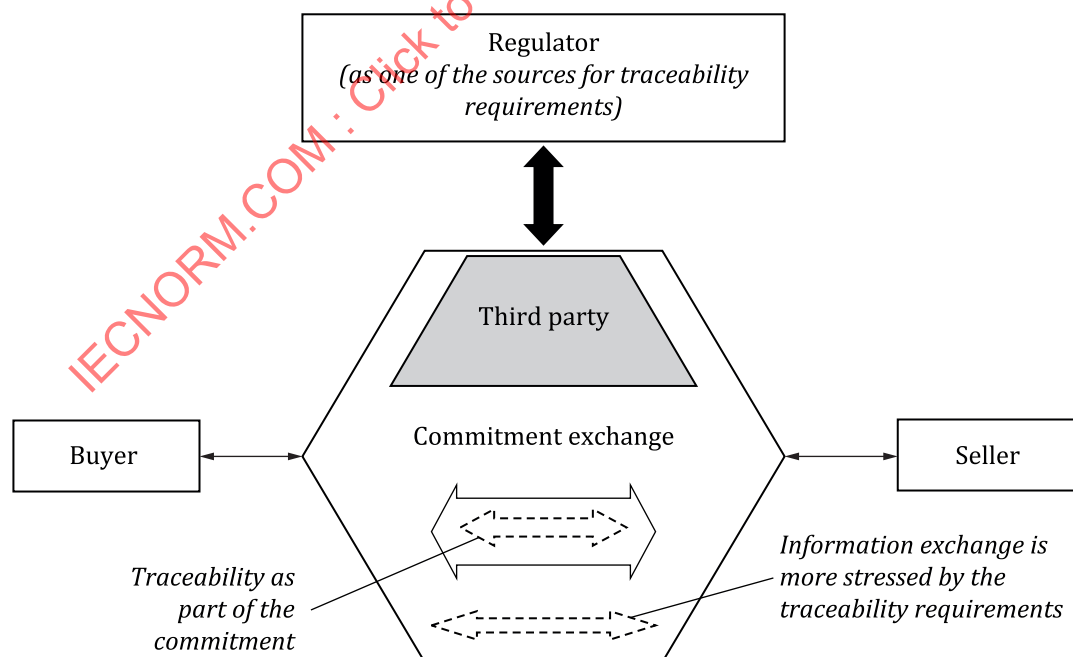


Figure 9 — Collaboration space with regulator as external constraints of traceability

When considering traceability requirements, some features need to be highlighted in the general Open-edi collaboration space. The first thing is that the regulator is one of the sources for traceability requirements, as specified in 0.3 in this document. The second issue is that traceability is part of the commitment, as specified in 7.2.2.

The third issue is that information exchange is more stressed when traceability requirements applies. The information exchange exists in every type of Open-edi business transactions, since data is one of the key components. However, information shall be kept in a long term and be understood by business partners in order that the relevant commitments can be traced. See 7.5 for detailed rules of record retention and information sharing.

9 Traceability attributes for Open-edi scenario

9.1 Overview

This clause provides an update to the Open-edi scenario scoping as defined in ISO/IEC 15944-1 and this document does not any updates to the scenario specifications defined in ISO/IEC 15944-1.

9.2 Template structure and contents

The template structure is defined in ISO/IEC 15944-1:2023, 9.2. In 9.3, those entries marked with an asterisk, i.e., “*”, are the attributes for Open-edi scenario scoping added in support of traceability requirements of this document.

The template identifies only the “mandatory” decision codes for scoping Open-edi scenarios from a traceability requirements perspective.

Rule 45

The decision codes for the other Open-edi scenario attributes are to be completed when one uses the template to scope an Open-edi scenario for a specified context.

The users of this document shall use the decision codes defined in some entries in 9.3, and they may define their own decision codes for other entries in 9.3 that do not specify decision codes.

9.3 Template for specifying the scope of an Open-edi scenario — Traceability requirements perspective

Table 1 — Attributes for scenario scoping

IT-Interface		Linguistic Human-Interface Equivalents			Spare
Scope Tag ID Code	Decision Code	Name (English)	Name (French)	Name (Other)	
(1)	(2)	(3)	(4)	(5)	(6)
1000		BUSINESS GOAL OF BUSINESS TRANSACTION - NO EXTERNAL CONSTRAINTS			
1010	1	Business goal of business transaction includes External Constraints			
1040	1	Persons: (no external constraint)			
1041	1	Persons: Individual <-> Individual			
1042	1	Persons: Individual <-> Organization ^{a)}			
1043	1	Persons: Individual <-> Public Administration			
1044	1	Persons: Organization <-> Organizations ^{b)}			

Table 1 (continued)

IT-Interface		Linguistic Human-Interface Equivalents			Spare
Scope Tag ID Code	Decision Code	Name (English)	Name (French)	Name (Other)	
(1)	(2)	(3)	(4)	(5)	(6)
1045	1	Persons: Organization <-> Public Administration			
1046	1	Persons: Public Administration <-> Public Administration			
1060	1	Bilateral Business Transaction Model			
1061	1	Mediated Business Transaction Model			
1065	1	Defined Market Model			
1066	1	Undefined Market Model			
1070		Immediate or Settlement Model			
1071		Separate Settlement Model			
1080		EXTERNAL CONSTRAINTS AND PUBLIC POLICY			
1081	1	External constraints of a (general) public policy nature apply			
1082		External constraints of a consumer protection nature apply			
1083		External constraints of a privacy protection nature apply			
1084		External constraints of an "individual accessibility" nature are supported			
1085		External constraints of a human rights nature are supported			
1086*	1	External constraints of traceability nature are supported			
1110		AGENTS AND THIRD PARTIES			
1110		Business Transaction allows for Agents ^{c)}			
1111		Buyer Agent			
1112		Seller Agent			
1130		Business Transaction allows for Third ^{d)} Parties			
1131		By mutual agreement of buyer and seller (as internal constraints only)			
1132	1	External Constraint(s) Mandated			
1150		External Constraints and agents			
1151		External constraints require a buyer to use an agent			
1152		External constraints require a seller to use an agent			
1160		EXTERNAL CONSTRAINTS AND THIRD PARTY			
1161		External constraints require participation of a qualified third party			

Table 1 (continued)

IT-Interface		Linguistic Human-Interface Equivalents			Spare
Scope Tag ID Code	Decision Code	Name (English)	Name (French)	Name (Other)	
(1)	(2)	(3)	(4)	(5)	(6)
1170		EXTERNAL CONSTRAINTS AND REGULATOR			
1171		External constraints require participation of a qualified third party			
1172		External constraints allow for a third party to act on behalf of a regulator, i.e., interacting with both buyer and seller			
1173		External constraints allow for an agent to act on behalf of the regulator			
1180		DATE/TIME REFERENCING ^{e)}			
1181	1	Applicable Calendar Specified			
1182	1	Applicable Clock (and level of granularity) specified			
1190*		LOCATION REFERENCING			
1191*	1	Applicable physical location schema			
1192*	1	Applicable virtual location schema			
1200	1	PROCESS COMPONENT: All five sets of distinct activities covered.			
1210		PLANNING			
1215		Public information on goods/services provided by a seller			
1220		Public information on goods/services needed by buyer			
1225	1	Predefined/referenceable Catalog			
1230		Buyer initiated goods/service request			
1235		Seller initiated goods/service offer			
1240		Predefined Market Model			
1250	1	IDENTIFICATION			
1255	1	Identification for information exchange purposes only (e.g., an address) ^{f)}			
1260	1	Identification of Person able to make commitment			
1265	1	Identification of Person as “individual”			
1270	1	Identification of Person as “consumer”			
1300		NEGOTIATION			
1305		Monetary Payment Involved			
1310		Immediate Settlement Model			
1315		Separate Settlement Model Payment			
1350		ACTUALIZATION			
1355		Immediate Settlement			
1360		Separate Settlement			

Table 1 (continued)

IT-Interface		Linguistic Human-Interface Equivalents			Spare
Scope Tag ID Code	Decision Code	Name (English)	Name (French)	Name (Other)	
(1)	(2)	(3)	(4)	(5)	(6)
1400		POST-ACTUALIZATION			
1405	1	Includes warranties			
1410	1	Includes records retention			
1415	1	Includes staying in contact with buyer (e.g., defect and recall notification)			
1420*	1	Include tracking practices			
1500		DATA COMPONENT			
1501*	1	Traceability data specification			
1505		Predefined and Structured, i.e., code sets			
1520	1	Data integrity of any IB			
1525	1	Retention /latency of any IBs			
1530		SPECIFICATION OF RECORDS RETENTION RESPONSIBILITY ^{g)} (in support of internal and/or external constraints)			
1540		SPECIFICATION OF DISPOSITION OF RECORDED INFORMATION ^{h)}			
1541		Specification of disposition of recorded information from an internal constraint perspective			
1542		Specification of disposition of recorded information from an external constraints (jurisdictional domain requirements) perspective			
1550		SPECIFICATION OF RETENTION TRIGGERS ⁱ⁾			
1560		SPECIFICATION OF STATE CHANGES ^{j)}			
1570		SPECIFICATION OF STORE CHANGE TYPE ^{k)}			
1600		Business Requirements on FSV – No External Constraints ^{l)}			
1610		Service: Information Bundle Integrity			
1620		Service: Confidentiality of IB contents			
1625		Service: Non-repudiation of receipt			
1630		Service: Proof of Time IB creation ^{m)}			
1635		Service: Notarization of IBs			
1640		Service: Quality of Service (QoS)			
1700		EXTERNAL CONSTRAINTS ⁿ⁾			

Table 1 (continued)

IT-Interface		Linguistic Human-Interface Equivalents			Spare
Scope Tag ID Code	Decision Code	Name (English)	Name (French)	Name (Other)	
(1)	(2)	(3)	(4)	(5)	(6)
a) Often referred to as “B2C”, i.e. as in “business to consumer”. Here it is understood that a “consumer” is an “individual” and not an “organization”. b) Often referred to as “B2B” i.e. as in “business to business”. c) It is assumed that Business Rules and Constraints pertaining to the ability of the two primary parties, i.e. the seller and buyer, to be able to delegate all or part of their role and associated commitments to Agent(s) will be specified as part of “Role Attributes”, see further in ISO/IEC 15944-1:2023, 8.4.2.5. d) It is assumed that Business Rules and Constraints pertaining to the ability of the two primary parties, i.e. the seller and buyer, to commonly agree to delegate all or part of their role and associated commitments to a “third party(ies)” will be specified as part of “Role Attributes”, see further ISO/IEC 15944-1:2023, 8.4.2.5. e) For applicable rules, see ISO/IEC 15944-5:2008, 6.6.4.5 f) A typical example here is an e-mail address or a P.O. Box address. g) If applicable, i.e. as applying to the set of recorded information pertaining to the business transaction as a whole, use coded domain “ISO/IEC 15944-5:02 Codes representing Specification of Records Retention Responsibility”. See also ISO/IEC 15944-5:2008, 6.6.4.2 h) If applicable, i.e. as applying to the set of recorded information pertaining to the business transaction as a whole, use coded domain “ISO/IEC 15944-5:03 Codes representing Disposition of Recorded Information”. See also ISO/IEC 15944-5:2008, 6.6.4.2 i) If applicable, i.e. as applying to the set of recorded information pertaining to the business transaction as a whole, use coded domain “ISO/IEC 15944-5:04 Codes representing Retention Triggers”. See also ISO/IEC 15944-5:2008, 6.6.4.2 j) If applicable, i.e. as applying to the set of recorded information pertaining to the business transaction as a whole, use coded domain “ISO/IEC 15944-5:06 Codes store change type for Information Bundles and semantic components”. See also ISO/IEC 15944-5:2008, 6.6.4.3 k) If applicable, i.e. as applying to the set of recorded information pertaining to the business transaction as a whole, use coded domain “ISO/IEC 15944-5:05 Codes for specifying state changes allowed for IBs and SCs”. See also ISO/IEC 15944-5:2008, 6.6.4.3 l) See further ISO/IEC 15944-1:2023, 6.5.2 m) Often referred to as time-stamping services n) See further ISO/IEC 15944-5:2008					

Annex A (normative)

Consolidated controlled vocabulary definitions and associated terms, as human interface equivalents (HIEs), English and French language equivalency in the IT standardization context

A.1 Purpose

All parts of the ISO/IEC 15944 series of eBusiness standards maximize the use of existing standards, where and whenever possible, and in particular relevant and applicable existing terms and definitions of concepts as found existing ISO/IEC, ISO, or IEC existing standards. They are re-used either “as is” or as “adapted”. These are many examples of the application of this rule found in [Clause 3](#).

In addition, since the inception of the development multipart ISO/IEC 15944 eBusiness standard, back in 2000, the need for unambiguous definitions was recognized to minimize possible ambiguities in the same, as well as, to facilitate their implementations by users in an international and multilingual eBusiness context.

NOTE In the 1st edition of ISO/IEC 15944-9:2015, the Annex A titled “*Consolidated list of terms and definitions with cultural adaptability: ISO English and ISO French language equivalency*”, contained a number of important sub-clauses, namely:

- A.4 “*Organization of Annex A — Consolidated List in Matrix Form*”; and,
- A.5 “*Consolidated List of ISO/IEC 15944-9 Terms and Definitions*”

The 1st or 2nd editions of ISO/IEC of ISO/IEC 15944-1, ISO/IEC 15944-2, ISO/IEC 15944-4, ISO/IEC 15944-6, ISO/IEC 15944-8, ISO/IEC 15944-10, and ISO/IEC 15944-12 contain a similar approach to [Annex A](#) as well as these two detailed subclauses.

In the meantime, ISO/IEC JTC1/SC32/WG1 eBusiness had developed ISO/IEC 15944-7⁹⁾. Subsequently, the contents and tables of A.4 and A.5 of the 2nd edition of this document have been transferred to ISO/IEC 15944-7:2009, D.2.

Therefore, in this document, the remaining text of [Annex A](#) has been reorganized accordingly. This includes orienting its focus in a HIEs context (a very useful concept introduced in the 1st edition of ISO/IEC 15944-2, and subsequently used in all parts of the ISO/IEC 15944 series).

A.2 Maximizing unambiguity and quality control

In order to maximize unambiguity and ensure necessary quality in the ISO/IEC 15944 series of eBusiness standards, as well to facilitate multilingual and international interoperability of key eBusiness definitions and their associated terms, the concept and definition of human interface equivalencies (HIEs) was developed for several reasons, the four primary reasons being that,

- a) international standards development, by its very nature, focuses on identifying new issues, needs and resolving them. This includes identification of new concepts, developing an “international standard” definition for the same, and then deciding on the label, i.e., term, to be assigned to the definition of this new concept. Here it is most likely that the “term” assigned to the definition of the new concept will be, as what is known in terminology work as an invented, i.e., “coined” term

9) In its 1st edition, the HIEs for the terms and definitions in English and French are found in Annex D, those for English and Russian in Annex E, and those for English and Chinese in Annex F.

(see ISO/IEC 15944-7:2009, 5.3.2). This means that such new English language “coined” terms in an international standard are not found in exiting English language dictionaries, i.e., they are first introduced into the English language via an ISO/IEC (as well as ISO or IEC) standard.

Thus, it is very likely that the introduction of these new concepts, the development of their definitions and assignment of a label, i.e., “term” to the same in an international standard will not have a semantic equivalent in another language. As such it is unlikely that equivalent translation exists. Instead, one needs to view this as a challenge of developing a human interface equivalent (HIE) in another language.

As such, in order, to ensure that there is no ambiguity in the definition of a new concept, it is the approach of this document and other parts of ISO/IEC 15944, as well as ISO/IEC 14662 to use HIEs (See ISO/IEC 15944-2:2015, 3.35 for its definition) in English and French in the IT standardization context.

- b) Where the use any part ISO/IEC 15944 of the multipart series of eBusiness standard (as well as any other ISO/IEC. ISO, IEC, ITU, etc.), involves, or impacts, an individual as the “buyer” of any good, service and/or right of any nature (including those provided to individuals by private or public sector organizations, including public administrations, then international, regional and national public policy requirements of a legal/and regulatory requirements apply.

The most common of the international legal/regulatory requirement of a “public policy” nature already identified and supported in the multipart series of ISO/IEC 15944 series of eBusiness standards as defined set of rights of an include “consumer protection (see ISO/IEC 15944-5:2008, 3.33), privacy protection (see [3.62](#)), individual accessibility(see ISO/IEC 15944-5:2008, 3.60), human rights¹⁰⁾, etc.

NOTE These important legal/regulatory requirements as public policy rights of an individual are introduced, explained, fully supported and defined in ISO/IEC 15944-5.

- c) ISO/IEC JTC1 has “cultural adaptability” as the third strategic direction which all standards development should support, where applicable. The other two strategic directions of ISO/IEC JTC1 standards development are “portability” and “interoperability”. Here it is noted that ISO Technical Management Board (TMB) has permitted ISO/IEC JTC1 to issue its standards in the English language only, instead of in the three official languages ISO, i.e., English, French and Russian. It is also noted that many ISO/IEC JTC1 standards introduce an artificial language, (e.g., a i.e., “programming language”, a “database language”, etc.) and thus do not use a “natural”, i.e., human, language.

Therefore, when a new concept, its definition and associated term is developed, it is necessary at the same time to develop HIEs for the same in one or more other languages. This approach:

- adds a level of “quality control check” as developing an equivalency in another language identifies ambiguities in the source language;
- recognizes that in languages other than English, specifying the grammatical gender of the term is essential (since the same word, i.e., character string, may well have a completely different meaning depending on its grammatical gender (see ISO/IEC 15944-5:2008, 6.2.6);
- enhances the widespread adoption and use of eBusiness standards world-wide, especially users of this document who include various industry sectors, different legal perspectives, policymakers and consumer representatives, other standard developers, IT hardware and service providers, etc.; and
- takes an IT-enabled approach which promotes interoperability from both IT interface and human interface perspective (see ISO/IEC 15944-5). An essential aspect of this approach is to assign and use the unique and unambiguous composite identifier of each term/definition

10) Article 19, of the UN Charter of Universal Declaration of Human Rights specify what these are. See Reference [\[28\]](#).

pair as the ID code with which are associated multiple bilingual/multilingual semantically HIE representations.

- d) in 2006, the United Nations adopted the UN Convention of rights of persons with disabilities (CRPD)¹¹⁾. It is noted that the concept and definition of HIE (developed as part of the 1st edition of ISO/IEC 15944-2:2006) was developed in support of the UN CRPD. It is noted that ISO/IEC JTC1/SC36 developed ISO/IEC 20016-1. Significant normative elements in the development of the ISO/IEC 20016-1, i.e., definitions, rules, etc., are based on ISO/IEC 15944 eBusiness standards. Here, ISO/IEC JTC 1/SC 32 introduced the concept and controlled vocabulary of ISO/IEC 15944 eBusiness standards in the development of these standards.

A.3 Role and importance of ISO/IEC 15944-7

Based on the need to maximize unambiguity and quality control in the development of an HIE approach to entries in [Clause 3](#), ISO/IEC 15944-7 was developed to capture in a formalized manner:

- applicable international standards in the fields of terminology and vocabulary (These are primarily those of ISO TC37 and ISO TC 46); and
- apply them in a practical, IT-enabled and cost-efficient manner in a multilingual eBusiness requirements context. (Initially based on the lessons learned in the development of ISO/IEC 14662 and 1st editions of ISO/IEC 15944-1, ISO/IEC 15944-2, ISO/IEC 15944-4, ISO/IEC 15944-5 and ISO/IEC 15944-6).

The results are formalized in ISO/IEC 15944-7:2009, Clause 5 and in particular its subclause 5.2.

An important result is that when and wherever in the development a new part of the ISO/IEC 15944 series involved the identification of a new concept and the development of a definition (as well as assignment of a term for a new concept), the rules found in ISO/IEC 15944-7:2009, Clause 5 apply, including the requirements to provide an HIE in at least one other language.

This requirement has been met in the development of this document. For the English and French HIEs in this document, see ISO/IEC 15944-7:2009, Annex D.

ISO/IEC 15944-7, a publicly available standard at the ISO publicly available standard website¹²⁾, provides rules and procedures for creating and maintaining a (consolidated) “controlled vocabulary” and basically its Annex D provides a list of HIEs that provides the minimum level of unambiguity in ISO/IEC 15944 eBusiness standards as stated in [A.1](#).

A.4 List of terms and definition with cultural adaptability: English and French language equivalency in the IT standardization context

For English and French HIEs in this document, see ISO/IEC 15944-7:2009, Annex D.

11) Currently, all countries who are P-members of ISO/IEC JTC1 are also signatories to the CRPD. The development of this document had as its primary requirement to implement CRPD requirements in an eLearning context. In addition, its development was based on the assumption that a “requirements pertaining to a “learning transaction” were very similar to those already addressed in a “business transaction”, i.e., including the need to identify where in a learning transaction the “buyer”, i.e., “learner”, in an JTC1/SC36 eLearning standards context was an “individual” or not (e.g., “organizations” providing eLearning services to other). ISO/IEC 20016-1 was also found to be a base foundational “Framework” standards freely available ISO/IEC JTC standard.

12) See <https://standards.iso.org/ittf/PubliclyAvailableStandards/index.html>

Annex B (informative)

Introduction to GS1 Glossary

B.1 Purpose

This document keeps much consistency with existing standards and specifications. Among these standards and specifications, GS1 global traceability standard provides detailed traceability specifications at the implementation level, while this document provides traceability requirements in an Open-edi environment. This annex is based on the GS1 global traceability standard¹³⁾. Many of these concepts in its glossary are referenced by the development of this document by adaption of their definitions to the Open-edi environment.

In the context of the linkages between this document and the GS1 Glossary, three types of interoperability can be viewed at. They are:

- a) Type 1 – GS1 Glossary Concept not adopted in [Clause 3](#). However, the concept has been referenced in the development of this document. Entries of this nature are listed as “as is” in [B.2](#), i.e., with no indicator.
- b) Type 2 – ISO standards already exist which define the concept as represented by the term assigned, i.e., the same term is used in both ISO standard and in the GS1 Glossary. The GS1 Glossary definition is deemed to have a (sufficient) level of interoperability with that of ISO standards. They are listed in [B.2](#) with indicator “*” following the entry for the GS1 term.
- c) Type 3 – This document has adopted the term and/or definition to the Open-edi and eBusiness environment. Type 3 GS1 concepts are fully interoperable with this document in the Open-edi environment. They are listed in [B.2](#) with an indicator “**” following the entry for the GS1 term.

B.2 List of concepts in the glossary of GS1 global traceability standard

— Actor

An actor is a role that a user plays with respect to a system.

— Application Identifier (AI)

The field of two or more characters at the beginning of an Element String that uniquely defines its format and meaning.

— Batch/Lot Number

A batch unites products/items that have undergone the same transformation processes. Batch and Lot are considered as synonyms.

— Event *

Is an occurrence of a process in a specific time or a period of time.

13) Latest accessed on February 1, 2023, https://www.gs1.org/docs/traceability/GS1_traceability_what_you_need_to_know.pdf

— **External Traceability**

External traceability takes place when instances of a traceable item are physically handed over from one traceability partner (traceable item source) to another (traceable item recipient).

— **Global Location Number (GLN)**

The GS1 Identification Key comprising a GS1 Company Prefix, Location Reference, and Check Digit used to identify physical locations or legal entities.

— **Global Trade Item Number (GTIN)**

The format in which Global Trade Item Numbers® (GTINs®) must be represented in a 14-digit reference field (key) in computer files to ensure uniqueness of the identification numbers.

— **Global Returnable Asset Identifier (GRAI)**

Global Returnable Asset Identifier.

— **GS1 System**

The specifications, standards, and guidelines administered by GS1.

— **Identification ***

The identity assigned to an item or party that is needed to access other relevant information about the item or party.

— **Identification Carrier**

Mark/tag/label/accompanying document sometimes called “passport” or “identity card” in some industry sectors

— **Internal Process**

A series of actions, changes or function(s) within a company or organization that brings about a result.

— **Internal Traceability**

Internal traceability takes place when a traceability partner receives one or several instances of traceable items as inputs that are subjected to internal processes, before one or several instances of traceable items are output.

— **Link**

Recording the information necessary to establish the relationship to other relevant information.

— **Location ***

A place where a traceable item is or could be located. [ISO 22519] A place of production, handling, storage and/or sale.

— **Logistic Unit**

An item of any composition established for transport and/or storage that needs to be managed through the supply chain.

— **Master Data ***

Master Data describes each item and party involved in supply chain processes. Master Data is defined as data having the following characteristics:

- permanent or lasting nature;