
**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 15944-9:2015



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2015

All rights reserved. Unless otherwise specified, 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
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

0	Introduction.....	viii
0.1	Purpose and overview	viii
0.2	ISO/IEC 14662 “Open-edi Reference Model”	viii
0.3	Part 1 of ISO/IEC 15944 “Business Operational View (BOV) - Operational aspects of Open-edi for implementation”	ix
0.4	“Traceability” in the context of business transaction and commitment exchange	xi
0.5	Representation of rules and guidelines	xii
0.6	Organization and description of document	xiii
1	Scope	1
1.1	Statement of scope	1
1.2	Exclusions	1
1.2.1	Functional Services View (FSV)	1
1.2.2	Internal behaviour of organizations (and public administration)	2
1.2.3	Metrological traceability	2
1.3	Aspects not currently addressed	2
2	Normative references	3
3	Terms and definitions	4
4	Symbols and abbreviations	26
5	Principles and assumptions	27
5.1	Introduction	27
5.2	Important Open-edi characteristics that provide support for traceability	27
5.3	Principles for traceability	28
5.3.1	Introduction	28
5.3.2	Traceability principle 1: Unambiguous identification	28
5.3.3	Traceability principle 2: Record-keeping	29
5.3.4	Traceability principle 3: Defined level of granularity	30
5.3.5	Traceability principle 4: Ensuring traceability among parties	30
5.3.6	Traceability principle 5: Precision in temporal and/or location referencing	30
5.4	Two types of tracking	30
6	Traceability reference model	31
6.1	Introduction	31
6.2	Traceability data in business transaction	31
6.2.1	Predefined and structured traceability data	31
6.2.2	Predefined contents of traceability data	32
6.3	General content of traceability data	34
6.3.1	General rules for identification of BTEs	34
6.3.2	Integration and interoperability of identification schema	34
6.3.3	Identification and description of traceable commitments and non-traceable commitments	36
6.3.4	Rules governing unambiguous identification of Person in support of traceability requirements	37
6.3.5	Business event	38
7	Traceability requirements to business transaction	40
7.1	Introduction	40
7.2	General requirements	40
7.2.1	Key components of a business transaction	40
7.2.2	Commitment exchange	40
7.3	Traceability requirements on Person	40
7.3.1	General requirements on Person	40
7.3.2	Requirements on a regulator	41
7.3.3	Requirements on a buyer	41
7.3.4	Requirements on Person as an individual – Privacy protection and individual accessibility requirements	41
7.4	Traceability requirements on process	42
7.5	Traceability requirements on data	43

7.5.1	Introduction	43
7.5.2	Traceability data retention	43
7.5.3	State changes.....	43
7.5.4	Business transaction ID	43
7.5.5	Unambiguous traceability data	43
7.5.6	Traceability data sharing	44
7.5.7	Master data (in a business transaction)	44
8	Open-edi collaboration space and traceability.....	45
8.1	Introduction	45
8.2	Basic Open-edi collaboration space: an independent view of traceability	45
8.3	Collaboration space: The roles of buyer, seller and regulator	46
9	Traceability attributes for Open-edi scenario scoping	47
9.1	Introduction	47
9.2	Template structure and contents	47
9.3	Template for specifying the scope of an Open-edi scenario – traceability requirements perspective	48
Annex A	(Normative) List of terms and definitions with cultural adaptability of traceability: ISO English and ISO French language equivalency.....	54
A.1	Introduction	54
A.2	ISO English and ISO French	54
A.3	Cultural adaptability and quality control	54
A.4	Organization of Annex A – Consolidated list in matrix form	55
A.5	Matrix of new definitions and terms introduced in Part 9 with cultural adaptability of ISO English and ISO French language equivalency.....	56
Annex B	(Informative) Introduction to GS1 Glossary	61
B.1	Introduction	61
B.2	List of concepts in the glossary of GS1 global traceability standard	61
Annex C	(Informative) Date/time referencing	67
C.1	Introduction – Need for precise date/time referencing in support of traceability requirements	67
C.2	Extract from 6.6.4.5 “Date/time referencing” in Part 5 of ISO/IEC 15944	67
Annex D	(Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location.....	71
D.1	Introduction	71
D.2	ISO 3166 in Annex D of Part 5 of ISO/IEC 15944.....	71
D.3	Introduction to Annex E of Part 5 of ISO/IEC 15944.....	72
Annex E	(Informative) Samples of international standards or specifications in support of traceability requirements	75
E.1	Diverse samples of ISO, IEC, ITU standards that are used in support of traceability requirements	75
E.1.1	ISO 26324:2012 “Information and documentation -- Digital object identifier system”	75
E.1.2	ISO/IEC 15459 “Information technology — Unique identifiers” multipart standard.....	75
E.1.3	ITU-T X.660 Information technology – Open Systems Interconnection – Procedures for the operation of OSI Registration Authorities: General procedures and top arcs of the ASN.1 Object Identifier tree	76
E.2	Other international standard or specifications in support of traceability requirements	77
E.2.1	United Nations Central Product Classification (UN/CPC).....	77
E.2.2	United Nations Standard Products and Services Code (UN/SPSC)	77
E.2.3	World Customs Organization Harmonized System (WCO/HS)	78
Annex F	(Informative) Mapping of BTEs through their identifiers in a traceability framework	79
F.1	Basic mapping	79
F.2	Chain of commitment exchange traceability mapping	80
Annex G	(Informative) Introduction to sample regulations as the sources of requirements of traceability	82
G.1	An brief introduction to China’s Defect Automobile Product Recall Regulation.....	82
G.2	A brief introduction to Regulation (EC) No 178/2002 of the European Parliament and of the Council	82
G.3	A brief introduction to section 519(e) of the US Federal Food, Drug, and Cosmetic Act (the Act), 21 USC 360i(e)	83
	Bibliography.....	84

List of Figures

Figure 1 — Open-edi environment	vii
Figure 2 — Integrated View – Business Operational Requirements	x
Figure 3 — Model of traceability concepts	31
Figure 4 — Focus of BOV Open-edi standardization work required by traceability — predefined and structured traceability data	32
Figure 5 — Content model for traceability in a business transaction	33
Figure 6 — The identification radar: What it covers.	35
Figure 7 — Commitments including traceable and non-traceable commitments	37
Figure 8 — Information model of business event	39
Figure 9 — Different views of business collaboration	47
Figure 10 — Collaboration space with regulator as external constraints of traceability	48
Figure F.1 — Entity and entity Mapping	83
Figure F.2 — Chain of commitment exchange traceability mapping among entity identifiers	84
Figure F.3 — Traceability route in a food business transaction with multi-parties	85

List of Tables

Table 1 — Attributes for scenario scoping	50
Table A.1 — Columns in Table A.2	58
Table A.2 — List of traceability terms and definitions with cultural adaptability of: ISO English and ISO French language equivalency	59

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. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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

For an explanation on 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 the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, SC 32, *Data management and interchange*.

ISO/IEC 15944 consists of the following parts, under the general title *Information technology — Business Operational View*:

- *Part 1: Operational aspects of Open-edi for implementation*
- *Part 2: Registration of scenarios and their components as business objects*
- *Part 4: Business transaction scenarios — Accounting and economic ontology*
- *Part 5: Identification and referencing of requirements of jurisdictional domains as sources of external constraints*
- *Part 6: Technical Introduction of e-Business Modelling [Technical Report]*
- *Part 7: eBusiness vocabulary.*
- *Part 8: Identification of privacy protection requirements as external constraints on business transactions*
- *Part 9: Business transaction traceability framework for commitment exchange*
- *Part 10: IT-enabled coded domains as semantic components in business transactions*

The following parts are under preparation:

- *Part 11: Descriptive Techniques for Foundational Modelling in Open-edl*
- *Part 12: Privacy protection requirements on information life cycle management (ILCM) in EDI*
- *Part 20: Linking business operational view to functional service view*

IECNORM.COM : Click to view the full PDF of ISO/IEC 15944-9:2015

0 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.

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. Depending on the nature of the business transaction, traceability may also be required by and involve an agent, a third party and/or a regulator (This may be a mandatory process invoked by the power of the regulator).

This Business Operational View (BOV) standard, i.e., this Part of ISO/IEC 15944, addresses the specific aspects of business semantic descriptive techniques needed in support of traceability requirements in Open-edi modelling of business transactions that support of internal constraints as well and especially those which are subject to external constraints.

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

The ISO/IEC 14662 Information technology - Open-edi Reference Model 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). Figure 1 from ISO/IEC 14662 illustrates the Open-edi environment.

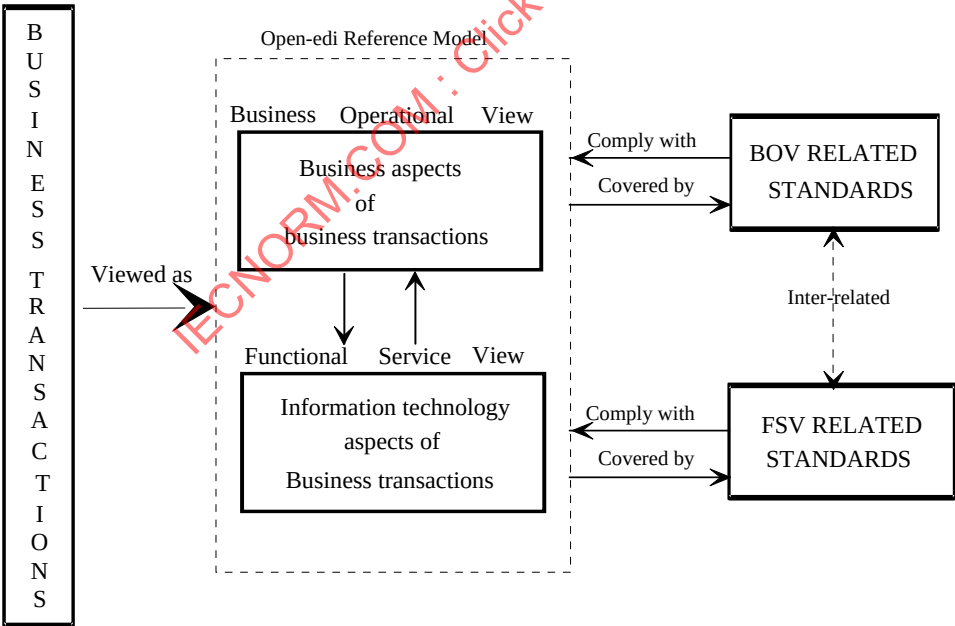


Figure 1 — Open-edi environment

ISO/IEC 14662, Clause 5 contains the following text:

“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)”.

In addition, Annex A of the ISO/IEC 14662 “Open-edi Reference Model” contains a Figure A.1 “Relationships of Open-edi standardization areas with other standards and import of the legal environment”. This Part of ISO/IEC 15944 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 Part of ISO/IEC 15944 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 Part 1 of ISO/IEC 15944 in Clause 7 “Guidelines for scoping Open-edi Scenarios” is, as stated in 7.1 of Part 1 of ISO/IEC 15944:

“The approach taken is 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 Part of ISO/IEC 15944 standard 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 (and related standards) will facilitate the transformation of these external constraints as business rules¹ into specified, registered, and re-useable scenarios and scenario components.

0.3 Part 1 of ISO/IEC 15944 “Business Operational View (BOV) - Operational aspects of Open-edi for implementation”

Part 1 of ISO/IEC 15944 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:

- commercial frameworks and associated requirements;
- legal frameworks and associated requirements;
- public policy requirements, particularly those of a generic nature such as consumer protection, privacy, and accommodation of handicapped/disabled;
- 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).

¹ See 0.5.

- In specifying scenarios, scenario components, and their semantics in the context of making commitments, one needs to distinguish between:
- a) 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,
 - b) their multiple human interface equivalent (HIE) expressions in a presentation form appropriate to the Persons involved in the making of the resulting commitments.²

Figure 2 provides an integrated view of these business operational requirements. Figure 2 is based on Figure 3 from Part 1 of ISO/IEC 15944. The focus of this Part of ISO/IEC 15944 is that of internal and external constraints, and those constraints about traceability may be either from legal requirements³, commercial requirements⁴, or public policy requirements⁵, 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.

IECNORM.COM : Click to view the full PDF of ISO/IEC 15944-9:2015

² See further 5.4 in ISO/IEC 15944-10. It is the intention of this part of ISO/IEC 15944 that the modelling of scenario and its components about traceability takes the same approach.

³ 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.

⁴ 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.

⁵ 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.

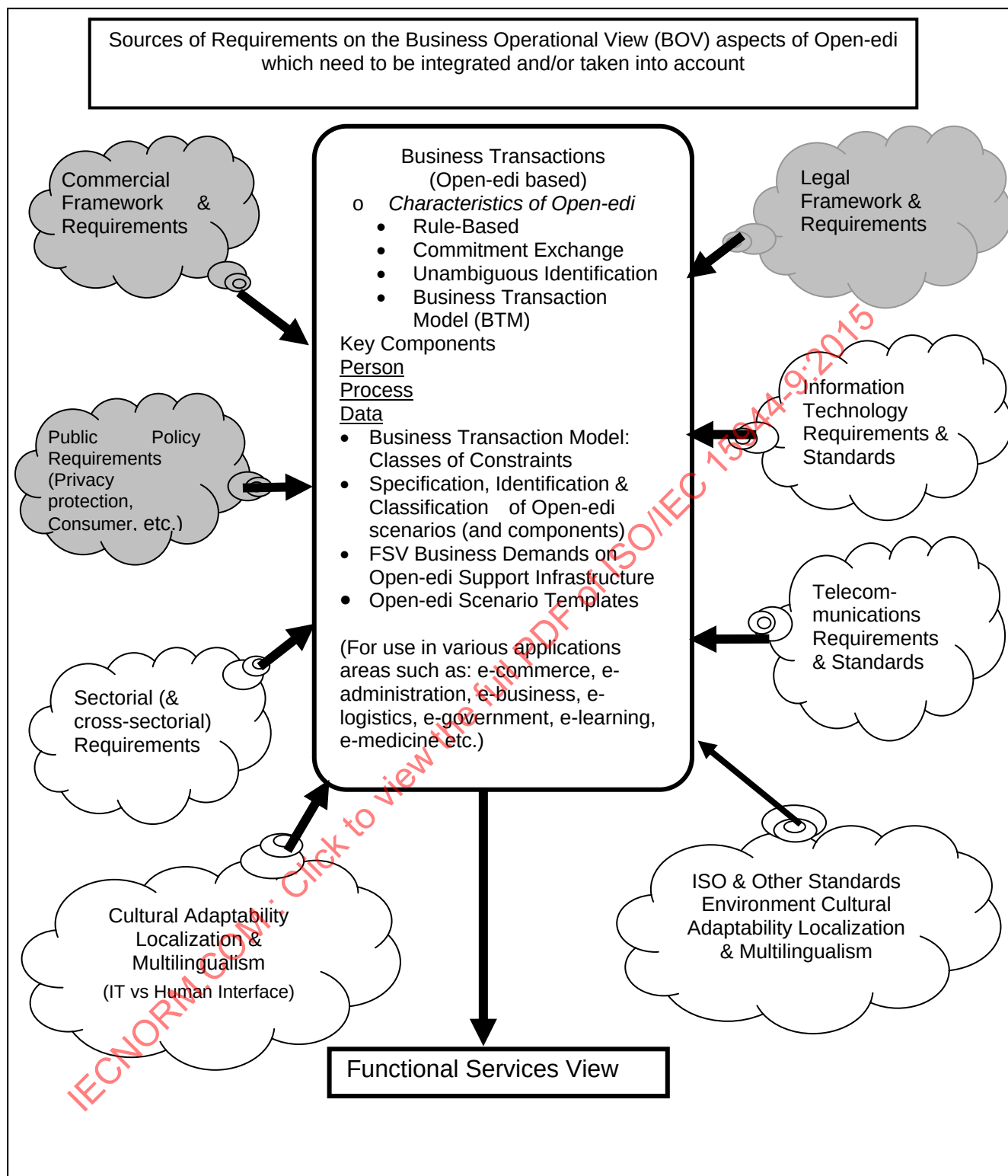


Figure 2 — Integrated view – Business Operational Requirements

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 & external) include the need:

- a) to fulfil any local, regional national or international regulations or policies, as applicable;
- b) 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, considerations shall be given to the 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 Part of ISO/IEC 15944 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) should consider and/or incorporate the rules stated in this Part of ISO/IEC 15944 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 6.1.2 in Part 1 of ISO/IEC 15944, this Part 9 of ISO/IEC 15944 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* font⁶. The same approach is taken in this Part of ISO/IEC 15944.

Conformance to this Part of ISO/IEC 15944 is based on the conformance to the rules stated in this Part of ISO/IEC 15944.

⁶ For example, in ISO/IEC 15944-1 “Guideline 5G2” equals the second Guidelines under Rule 5.

0.6 Organization and description of document

This Part of ISO/IEC 15944 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 ISO English and ISO 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 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 Part of ISO/IEC 15944 and the GS1 traceability specifications.
- Annex C (informative) introduces date/time-based referencing on 6.6.4.5 in Part 5 of ISO/IEC 15944 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 Part 5 of ISO/IEC 15944 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.

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 15944-9:2015

Information technology — Business Operational View — Part 9: Business transaction traceability framework for commitment exchange

1 Scope

1.1 Statement of scope

This Part of ISO/IEC 15944 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. 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 Part of ISO/IEC 15944 originate from external constraints. However, parties to a business transaction may well by mutual agreement apply external constraints of this nature as internal constraints.

The focus therefore of this traceability framework standard is on commitment exchange among autonomous parties to a business transaction.

As such, this statement of scope includes the ability of the traceability framework to

- specify 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 these concepts having the characteristics of cultural adaptability through the use of multilingual terms and definitions;
- provide additional specifications for Open-edi scenarios and scenario components from the perspective of traceability as required by internal or external constraints in business transactions;
- provide 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;
- realize specifications and descriptions from the traceability requirements as rules and guidelines, to provide recommendations or guidance on Open-edi practices; and,
- provide revised primitive Open-edi scenario templates for traceability, integrating the modifications to the template from other existing Parts of ISO/IEC 15944.

This Part of ISO/IEC 15944 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.

1.2 Exclusions

1.2.1 Functional Services View (FSV)

This standard focuses on the BOV aspects of a business transaction, especially commitment exchange and does not concern itself with the technical mechanisms needed to achieve the business requirements, i.e., the

various Functional Services View (FSV) aspects, including the specification of requirements of an FSV nature which include security techniques and services, communication protocols, etc. This includes any existing standard (or standards development of an FSV nature) that have been ratified by existing ISO, IEC, UN/ECE and/or ITU standards. As such, this Part of ISO/IEC 15944 does not specify any FSV aspects about traceability, which shall be part of the implementation of BOV standards in an IT system.

1.2.2 Internal behaviour of organizations (and public administration)

Although an organization, (e.g., an e-Business enterprise) may impose traceability requirements on business models and supporting IT systems, this Part and the other Parts of ISO/IEC 15944 focus on the external behaviour of parties to a business transaction. Therefore, excluded from the scope of this Part of ISO/IEC 15944 is the application of traceability requirements within an organization.

The Open-edi Reference Model does not specify these internal behaviours of an organization as not germane to business transactions (which focus on external behaviours pertaining to electronic data interchange among the autonomous parties to a business transaction). Therefore, excluded from the scope of this Part of ISO/IEC 15944 are:

- a) internal use and management of recorded information pertaining to an identifiable individual by an organization (or public administration) within an organization; and,
- b) implementation of internal information management controls, internal procedural controls or operational controls within an organization or public administration necessary for it to comply with applicable traceability requirements in observance of their lawful or contractual rights, duties and obligations as a legal entity in the jurisdictional domain(s) of which they are part.

However, the specifications for the external behaviour of an organization in this standard may well be used in the internal issues. But it is not the intent of this Part of ISO/IEC 15944 to specify the internal requirements of an organization.

1.2.3 Metrological traceability

In ISO/IEC Guide 99:2007⁷, 2.41, the term “traceability” is defined as “property of a measurement result whereby the result can be related to a reference through a documented unbroken chain of calibrations, each contributing to the measurement uncertainty”. In this context, the word traceability is used as a metrological term. The word “traceability” as used in this Part of ISO/IEC 15944 does not relate to metrology and thus the specification of metrological traceability is not addressed in this Part of ISO/IEC 15944.

1.3 Aspects not currently addressed

During the development of this part of the standard, requirements specified by International Air Transport Association (IATA) were identified as an important source of traceability principles. However, due to the lack of resources or the technical input from IATA at the time of this standard, such requirements were not incorporated in the current version of this part of the standard.

Also, in the case of an individual acting as seller, where both external constraints of privacy protection and traceability apply, requirements on the provision of the personal information of that individual is not specified in this Part of ISO/IEC 15944-9.

The aspects are expected to be addressed in a future edition of this Part or another (new) Part of ISO/IEC 15944.

⁷ ISO/IEC Guide 99:2007 International vocabulary of metrology – Basic and general concepts and associated terms (VIM)

2 Normative references

The following referenced documents are indispensable for the application 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 8601:2004, *Data elements and interchange formats - Information interchange - Representation of dates and times*

ISO 9000: 2005, *Quality management systems*

ISO/IEC 14662, *Information technology - Open-edition Reference Model*

ISO/IEC 15944-1:2011, *Information Technology - Business Agreement Semantic Descriptive Techniques - Part 1: Operational Aspects of Open-edition for Implementation*

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

IECNORM.COM : Click to view the full PDF of ISO/IEC 15944-9:2015

3 Terms and definitions

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

3.1

address

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

NOTE 1 An address can be specified as either a physical address and/or electronic address.

NOTE 2 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 In the context of Open-edl, a “recorded information item” is modelled and registered as an Open-edl scenario (OeS), Information Bundle (IB) or Semantic Component (SC).

[ISO/IEC 15944-2:2006, 3.1]

3.2

agent

Person acting for another **Person** in a clearly specified capacity in the context of a **business transaction**

NOTE Excluded here 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)”.

[ISO/IEC 15944-1:2011, 3.1]

3.3

attribute

characteristic of an **object** or **entity**

[ISO/IEC 11179-3:2013, 3.1.3]

3.4

authentication

provision of assurance of the claimed identity of an **entity**

[ISO/IEC 10181-2:1996, 3.3]

3.5

authenticity

property that ensures that the identity of a subject or resource is the one claimed

NOTE Authenticity applies to entities such as users, processes, systems and information.

[ISO/IEC TR 13335-1:2006, 3.3]

3.6

business

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

[ISO/IEC 14662:2010, 3.2]

3.7

business event

occurrence in time that **partners** to a **business transaction** wish to monitor or control

NOTE 1 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 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 the ISO 8601 and/or ISO 19135 standards).

[ISO/IEC 15944-4:2006, 3.5]

3.8

business location

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

[ISO/IEC 15944-4:2007, 3.6]

3.9

business object

unambiguously identified, specified, referenceable, registered and re-useable **Open-edi scenario** or **scenario component** of a **business transaction**

NOTE As an "object", a "business object" exists only in the context of a business transaction.

[ISO/IEC 15944-2:2006, 3.6]

3.10

Business Operational View (BOV)

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

[ISO/IEC 14662:2010, 3.3]

3.11

business transaction

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

[ISO/IEC 14662:2010, 3.4]

3.12

business transaction entity (BTE)

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

[ISO/IEC 15944-4:2007, 3.9]

3.13

business transaction identifier (BTI)

identifier assigned by a **seller** or a **regulator** to an instantiated **business transaction** among the **Persons** involved

NOTE 1 The identifier assigned by the seller or regulator shall have the properties and behaviours of an "identifier (in a business transaction)".

NOTE 2 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 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 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).

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

3.14

business transaction traceability (BTT)

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

NOTE 1 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.

NOTE 2 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.

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

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

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

3.15

buyer

Person 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

[ISO/IEC 15944-1:2011, 3.8]

3.16

coded domain

domain for which

- (1) the boundaries are defined and explicitly stated as a **rule base** of a coded domain Source Authority; and,
- (2) each **entity** which qualifies as a member of that domain is identified through the assignment of a unique **ID code** in accordance with the applicable **Registration Schema** of that **Source Authority**

NOTE 1 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 Source Authorities which are jurisdictional domains are the primary source of coded domains.

NOTE 3 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 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 In a coded domain the rules for assignment and structuring of the ID codes must be specified.

NOTE 6 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 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 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 Common examples include: (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 In object methodology, entities that are members of a coded domain are referred to as instances of a class.

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

[ISO/IEC 15944-2:2006, 3.13]

3.17

code (in coded domain)

identifier, i.e., an ID **code**, assigned to an **entity** as member of a **coded domain** according to the pre-established set of **rules** governing that **coded domain**

[ISO/IEC 15944-5:2008, 3:19]

3.18

collaboration space

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

NOTE 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.

[ISO/IEC 15944-4:2008, 3.12]

3.19

commitment

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

[ISO/IEC 14662:2010, 3.5]

3.20

computational integrity

expression of a **standard** in a form that ensures precise description of behaviour and semantics in a manner that allows for automated processing to occur, and the managed evolution of such **standards** in a way that enables dynamic introduction by the next generation of information systems

NOTE Open-ed standards have been designed to be able to support computational integrity requirements especially from a registration and re-use of business objects perspectives.

[ISO/IEC 15944-2:2006, 3.18]

3.21

concept

unit of knowledge created by a unique combination of characteristics

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

[ISO 1087-1:2000, 3.2.1]

3.22

constraint

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

NOTE 1 Constraints are specified as rules forming part of components of Open-edl scenarios, i.e., as scenario attributes, roles, and/or information bundles.

NOTE 2 For constraints to be registered for implementation in Open-edl, they must have unique and unambiguous identifiers.

NOTE 3 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".

[ISO/IEC 15944-1:2011, 3.11]

3.23

consumer

Buyer who is an **individual** to whom **consumer protection** requirements are applied as a set of **external constraints** on a **business transaction**

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

NOTE 2 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 It is recognized that external consumer protection constraints on a buyer may be peculiar to a specified jurisdictional domain.

[ISO/IEC 15944-1:2002, 3.11]

3.24

consumer protection

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

NOTE 1 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 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 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.

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

3.25

contact

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

NOTE 1 A Person here as a Contact can be an individual, an organization (or organization part or organization Person).

NOTE 2 Contact is capitalized to distinguish it from the many ordinary uses of the term.

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

[ISO/IEC 11179-3:2013, 3.3.26]

3.26

creation date

date the **OeRI** for a **business object** was created

[ISO/IEC 15944-2:2006, 3.24]

3.27

custody

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

NOTE 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).

[ISO/IEC 15944-4:2007, 3.15]

3.28

data

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

NOTE Data can be processed by humans or by automatic means.

[ISO/IEC 2382-1:1993, 01.01.02]

3.29

data (in a business transaction)

representations of **recorded information** that are being prepared or have been prepared in a form suitable for use in a computer system

[ISO/IEC 15944-1:2011, 3.14]

3.30**data element**

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

[ISO/IEC 11179-1:2004, 3.3.8]

3.31**data element (in organization of data)**

unit of **data** 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 Differs from the entry 17.06.02 in ISO/IEC 2382-17.

[ISO/IEC 2382-4:1999, 04.07.01]

3.32**date**

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

[ISO/IEC 15944-2:2006, 3.26]

3.33**eBusiness**

business transaction, involving the making of **commitments**, in a defined **collaboration space**, among **Persons** using their **IT systems**, according to **Open-edi standards**

NOTE 1 eBusiness can be conducted on both a for-profit and not-for-profit basis.

NOTE 2 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: eBusiness includes various application areas such as "e-commerce", "e-administration", "e-logistics", "e-government", "e-medicine", "e-learning", etc.

NOTE 4 The equivalent French language term for "eBusiness" is always presented in its plural form.

[ISO/IEC 15944-7:2007, 3.06]

3.34**effective date**

date an **OeRI** became/becomes available to registry users

[ISO/IEC 15944-2:2006, 3.31]

3.35

electronic address

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

[ISO/IEC 15944-2:2006, 3.32]

3.36

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 An entity exists whether data about it are available or not.

[ISO/IEC 2382-17:1999, 17.02.05]

3.37

(entity) authentication

method of using one or more **attributes** whose **attribute** values uniquely identify each occurrence of a specified **entity**

[ISO/IEC 2382-17:1999, 17.02.14]

3.38

(entity) identification

method of using one or more **attributes** whose values uniquely identify each occurrence of a specified **entity**

[ISO/IEC 2382-17:1999, 17.02.14]

3.39

external constraint

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

NOTE 1 Normally external constraints are created by law, regulation, orders, treaties, conventions or similar instruments.

NOTE 2 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 External constraints can apply to the nature of the good, service and/or right provided in a business transaction.

NOTE 4 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 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 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 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".

[ISO/IEC 15944-1:2011, 3.23]

3.40

Formal Description Technique (FDT)

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

[ISO/IEC 14662:2010, 3.9]

3.41

Functional Service View (FSV)

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

[ISO/IEC 14662:2010, 3.10]

3.42

ID Code

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

NOTE 1 ID codes must be unique within the Registration Schema of that coded domain.

NOTE 2 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 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 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 Common examples include: (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 In UML modelling notation, an ID code is viewed as an instance of an object class.

[ISO/IEC 15944-2:2006, 3.37]

3.43

identification

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

[ISO/IEC 15944-1:2011, 3.26]

3.44

Identifier (in business transaction)

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

NOTE 1 Identifiers must be unique within the identification scheme of the issuing authority.

NOTE 2 An identifier is a linguistically independent sequence of characters capable of uniquely and permanently identifying that with which it is associated. {See ISO 19135:2005 (4.1.5)}

[ISO/IEC 15944-1:2011, 3.27]

3.45

individual

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

[ISO/IEC 15944-1:2011, 3.28]

3.46

individual accessibility

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

NOTE Although "accessibility" typically addresses users who have a disability, the concept is not limited to disability issues.

EXAMPLES 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.

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

3.47

Information (in information processing)

knowledge concerning **objects**, such as facts, events, things, **processes**, or ideas, including **concepts**, which within a certain context has a particular meaning

[ISO/IEC 2382-1:1993, 01.01.01]

3.48

Information Bundle (IB)

formal description of the semantics of the **recorded information** to be exchanged by **Open-edi Parties** playing **roles** in an **Open-edi scenario**

[ISO/IEC 14662:2010, 3.11]

3.49

internal constraints

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

NOTE 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.

[ISO/IEC 15944-1:2011, 3.33]

3.50

jurisdictional domain

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

NOTE 1 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 Jurisdictional domains can combine to form new jurisdictional domains (e.g., through bilateral, multilateral and/or international treaties).

EXAMPLE Included here, for example, are the European Union (EU), NAFTA, WTO, WCO, ICAO, WHO, Red Cross, ISO, the IEC, the ITU, etc.

NOTE 3 Several levels and categories of jurisdictional domains may exist within a jurisdictional domain.

NOTE 4 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 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.

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

3.51

list

ordered **set of data elements**

[ISO/IEC 2382-4:1999, 04.08.01]

3.52

location

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

[ISO/IEC 15944-2:2006, 3.50]

3.53

master data (in a business transaction)

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

NOTE 1 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.

3.54

medium

physical material which serves as a functional unit, in or on which information or **data** 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 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 The inclusion of the "non-volatile in nature" attribute is to cover latency and records retention requirements.

NOTE 3 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 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.

[ISO/IEC 15944-1:2011, 3.34]

3.55

model

abstraction of some aspect of reality

[ISO 19115:2003, 4.9]

3.56**object**

anything perceivable or conceivable

NOTE Objects may be material (e.g., an engine, a sheet of paper, a diamond) or immaterial (e.g., a conversion ratio, a play) or imagined (e.g., a unicorn).

[ISO 1087-1:2000, 3.1.1]

3.57**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**

[ISO/IEC 11179-1:2004, 3.3.22]

3.58**Open-edi**

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

[ISO/IEC 14662:2010, 3.14]

3.59**Open-edi disposition**

process governing the implementation of formally approved records retention, destruction (or expungement) or transfer of **recorded information** under the control of a **Person** which are documented in disposition authorities or similar instruments

[adapted from ISO 15489-1:2001, 3.9]

3.60**Open-edi Party (OeP)**

Person that participates in **Open-edi**

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

[ISO/IEC 14662:2010, 3.17]

3.61**Open-edi Record Retention (OeRR)**

specification of a period of time that a **SRI** must be kept by a **Person** in order to meet operational, legal, regulatory, fiscal or other requirements as specified in the **external constraints** (or **internal constraints**) applicable to a **Person** who is a party to a **business transaction**

[ISO/IEC 15944-5:2008, 3.92]

3.62

Open-edi scenario (OeS)

formal specification of a class of **business transactions** having the same **business** goal

[ISO/IEC 14662:2010, 3.18]

3.63

Open-edi standard

standard that complies with the **Open-edi** Reference Model

[ISO/IEC 14662:2010, 3.19]

3.64

organization

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

NOTE 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.

[ISO/IEC 6523-1:1998, 3.1]

3.65

organization address

physical and/or **electronic address** of an **organization**

NOTE A physical address includes a "pick-up" address such as a mailbox or such other location one can deliver to.

[ISO/IEC 15944-2:2006, 3.75]

3.66

organization name

designation for the **organization**

NOTE The name by which the organization is known to the registration authority.

[ISO/IEC 11179-3:2013, 3.3.94]

3.67

origin

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

[ISO/IEC 15944-2:2006, 3.77]

3.68

partner

sub-type of **Person** that includes **buyer** and **seller**

[ISO/IEC 15944-4:2007, 3.51]

3.69

Person

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

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

NOTE 2 “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 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”.

[ISO/IEC 14662:2010, 3.24]

3.70

persona

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

[ISO/IEC 15944-1:2011, 3.51]

3.71

personal information

any information about an identifiable **individual** 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.

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

3.72

Person identity (Pi)

combination of **persona information** and **identifier** used by a **Person** in a **business transaction**

[ISO/IEC 15944-1:2011, 3.49]

3.73

physical address

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

[ISO/IEC 15944-2:2006, 3.80]

3.74

privacy protection

set of **external constraints** of a **jurisdictional domain** pertaining to **recorded information** on or about an identifiable **individual**, i.e., **personal information**, 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 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 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 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.).

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

3.75

process

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

[ISO/IEC 15944-1:2011, 3.53]

3.76

property

peculiarity common to all members of an **object class**

[ISO/IEC 11179-1:2004, 3.3.29]

3.77

public administration

entity, i.e., a **Person**, which is an **organization** and has the added **attribute** of being authorized to act on behalf of a **regulator**

[ISO/IEC 15944-1:2011, 3.54]

3.78

public policy

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

NOTE 1 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 15944-1:2011}

NOTE 2 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 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).

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

3.79

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 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 Through the use of the term "information," all attributes of this term are inherited in this definition.

NOTE 3 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.

[ISO/IEC 15944-1:2011, 3.56]

3.80

regulator

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

[ISO/IEC 15944-1:2011, 3.59]

3.81

resource flow

association between an **economic event** and an **economic resource**

NOTE 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.

[ISO/IEC 15944-4:2007, 3.58]

3.82

responsibility

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

NOTE 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 6.2.7 and Figure 17 in ISO/IEC 15944-1:2011}

[ISO/IEC 15944-4:2007, 3.59]

3.83

retention period

length of time for which **data** on a **data medium** is to be preserved

[ISO/IEC 2382-12:1988, 12.04.01]

3.84

role

specification which models an external intended behaviour (as allowed within a **scenario**) of an **Open-edition Party**

[ISO/IEC 14662:2010, 3.25]

3.85

rule

statement governing conduct, procedure, conditions and relations

NOTE 1 Rules specify conditions that must be complied with. These may include relations among objects and their attributes.

NOTE 2 Rules are of a mandatory or conditional nature.

NOTE 3 In Open-edition, 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 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)".

[ISO/IEC 15944-2:2006, 3.101]

3.86

rulebase

pre-established set of **rules** which inter-work and which together form an autonomous whole

NOTE One considers a rulebase to be to rules as database is to data.

[ISO/IEC 15944-2:2006, 3.102]

3.87

scenario attribute

formal specification of **information**, relevant to an **Open-edl scenario** as a whole, which is neither specific to **roles** nor to **Information Bundles**

[ISO/IEC 14662:2010, 3.26]

3.88

scenario component

one of the three fundamental elements of a scenario, namely **role**, **information bundle**, and **semantic component**

[ISO/IEC 15944-2:2006, 3.104]

3.89

scenario content

set of recorded information containing registry entry **identifiers**, labels and their associated definitions and related **recorded information** posted (or reposted) in any registry for **business objects**

[ISO/IEC 15944-2:2006, 3.105]

3.90

seller

Person 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

[ISO/IEC 15944-1:2011, 3.62]

3.91

Semantic Component (SC)

unit of **recorded information unambiguously** defined in the context of the **business** goal of the **business transaction**

NOTE A SC may be atomic or composed of other SCs.

[ISO/IEC 14662:2010, 3.27]

3.92

set

assembly of **objects** or **concepts** considered as a whole

[ISO 5127:2001, 1.1.1.03]

3.93

set of recorded information (SRI)

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

NOTE 1 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 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 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.

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

3.94

standard

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

NOTE 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: 1996 (1.7)}

[ISO/IEC 15944-1:2011, 3.64]

3.95

traceability data

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

NOTE 1 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 Traceability data serves as evidence in support of traceability requirements.

3.96

traceable commitment

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

3.97

unambiguous

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

[ISO/IEC 15944-1:2011, 3.66]

3.98

until date

date at which an **OeRI** is no longer effective in the registry

[ISO/IEC 15944-2:2006, 3.116]

4 Symbols and abbreviations

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
OeP	Open-edl Party
OeRI	Open-edl Registry Item
OeRR	Open-edl Record Retention
OeS	Open-edl 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
VIM	International Vocabulary of Metrology
WCO/HS	World Customs Organization/Harmonized System

5 Principles and assumptions

5.1 Introduction

As a high level generalization of business transactions among parties, Open-edi by its definition in this standard incorporates the constraints imposed by international or national laws and regulations from various jurisdictional domains. Business transactions in practice shall fully comply with those laws and regulations.

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 international or national laws, regulations and other official mandatory documents. This Part of ISO/IEC 15944 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-edi characteristics that provide support for traceability⁸

As specified in Part 1 of ISO/IEC 15944, Open-edi 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 5.1 of Part 1 of ISO/IEC 15944, it is specified that:

“Open-edi requires the use of clear and pre-defined rules, principles and guidelines. These rules formally specify the role(s) of the parties involved in Open-edi and the available expected behaviour(s) of the parties as seen by other parties engaging in Open-edi. Open-edi rules are applied to:

- content of information flows; and*
- the order and behaviour of information flows themselves.*

The combination of both of these provides a complete definition of the relationships among the parties since it requires them to achieve a common semantic understanding of the information exchanged. They must also have consistent generic procedural views on their interaction. Therefore rule sets have to be agreed in advance and captured in Open-edi scenarios. This is a major component of the agreement required among parties.”

⁸ See further Clause 5 in Part 1 of ISO/IEC 15944.

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.⁹

The ability to trace information in an Open-edi 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-edi 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 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 Introduction

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 Part of the ISO/IEC 15944 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

⁹ 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).

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 signatures¹⁰,
- b) the identifications for business transaction, through the use of BTIs (Business Transaction Identifiers)¹¹,
- 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 sub-clause.

¹⁰ 6.2 in ISO/IEC 15944-1:2011 provides more detailed specifications for the identification of Person and person identity. This part of ISO/IEC 15944 will specify those identification requirements for Person related to traceability. {see 7.3}.

¹¹ 6.6.4.4 in ISO/IEC 15944-5:2008 provides a general specification for the Business Transaction Identifier (BTI). This part of ISO/IEC 15944 will specify those requirements for BTI related to traceability {See 7.5.4}

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 behavior. 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). (See further below 6.4.6)

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. One is backward tracking, which is initiated by the end user knowing the information of product application but not the history, and the other is 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 Introduction

In ISO/IEC 14662 and other Parts of ISO/IEC 15944, 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 Part of ISO/IEC 15944, the “what is” aspects of traceability in a business transaction are specified 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 Part of ISO/IEC 15944, 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.

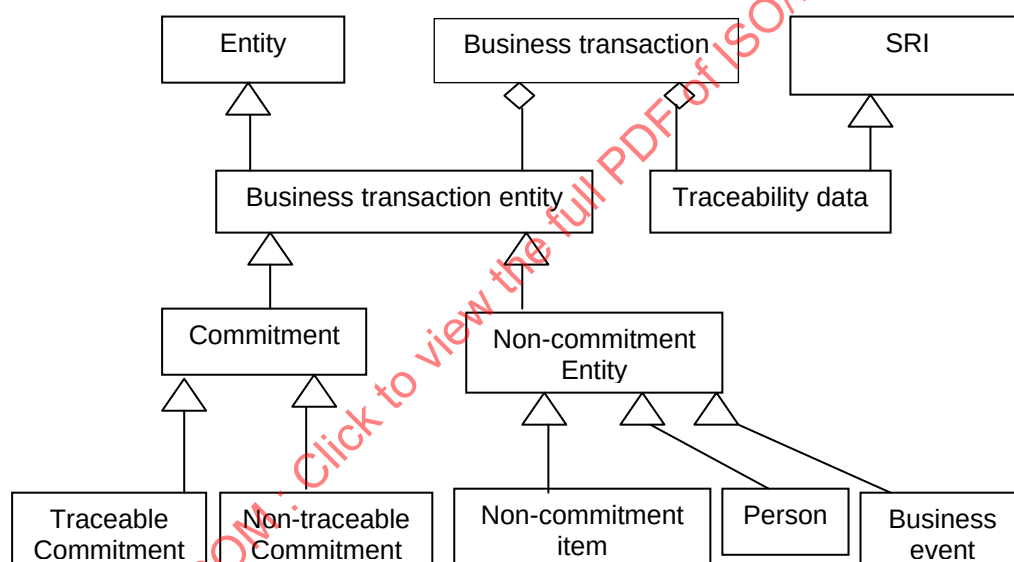


Figure 3 — Model of traceability concepts

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.¹²

Rule 09

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

In ISO/IEC 15944, traceability data are required to be structured and have predefined contents, as shown in

¹² Refer to 6.4.2 of ISO/IEC 15944-1:2011.

Figure 4, which is adapted from Figure 22 of Part 1 of ISO/IEC 15944. In this Part of ISO/IEC 15944, 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.

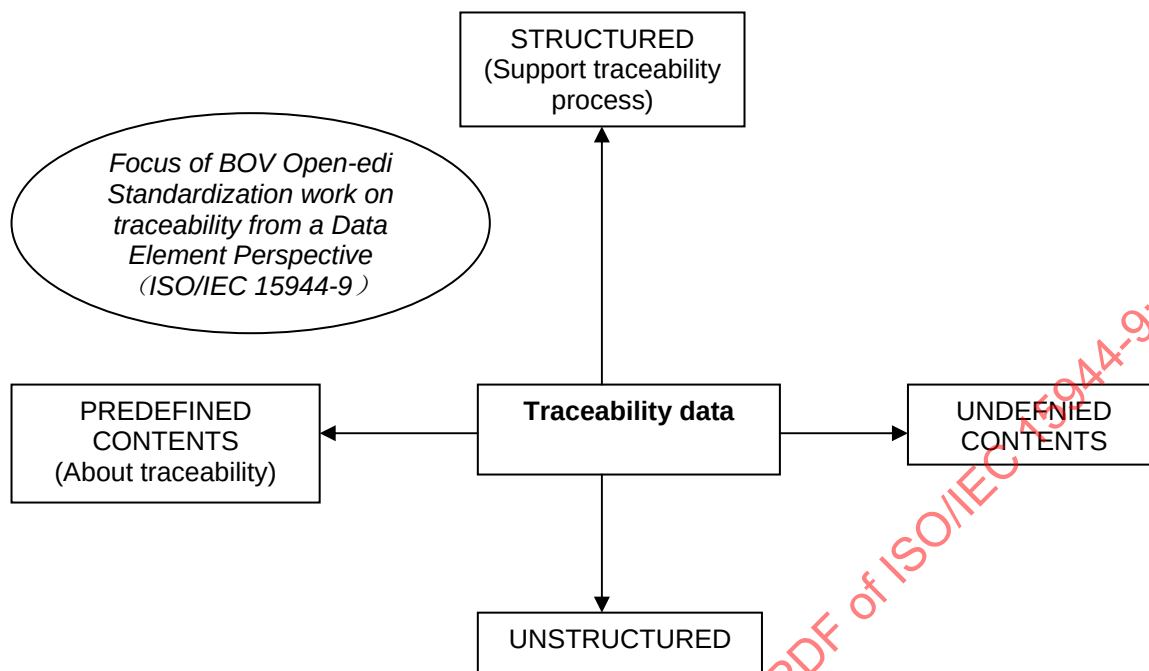


Figure 4 — Focus of BOV Open-edition standardization work required by traceability — predefined and structured traceability data

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 15459-5:2007.

The contents of traceability data is shown in Figure 5. In this figure, it is illustrated 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.

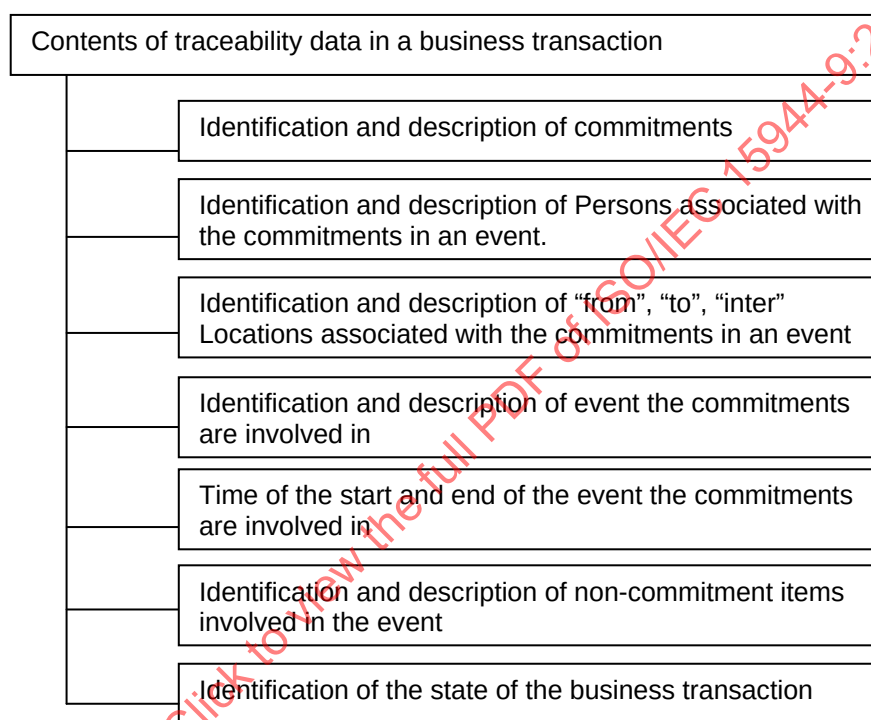


Figure 5 — Content model for traceability in a business transaction

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 granulated 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-ed 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.¹³ The one identifier to many entities relation is not allowed in most cases for lack of traceability.¹⁴

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 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 Part of ISO/IEC 15944, 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

¹³ 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.

¹⁴ In practices, this does exist. Sometime 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.

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 sub-clause gives some rules and guidelines dealing with this issue.

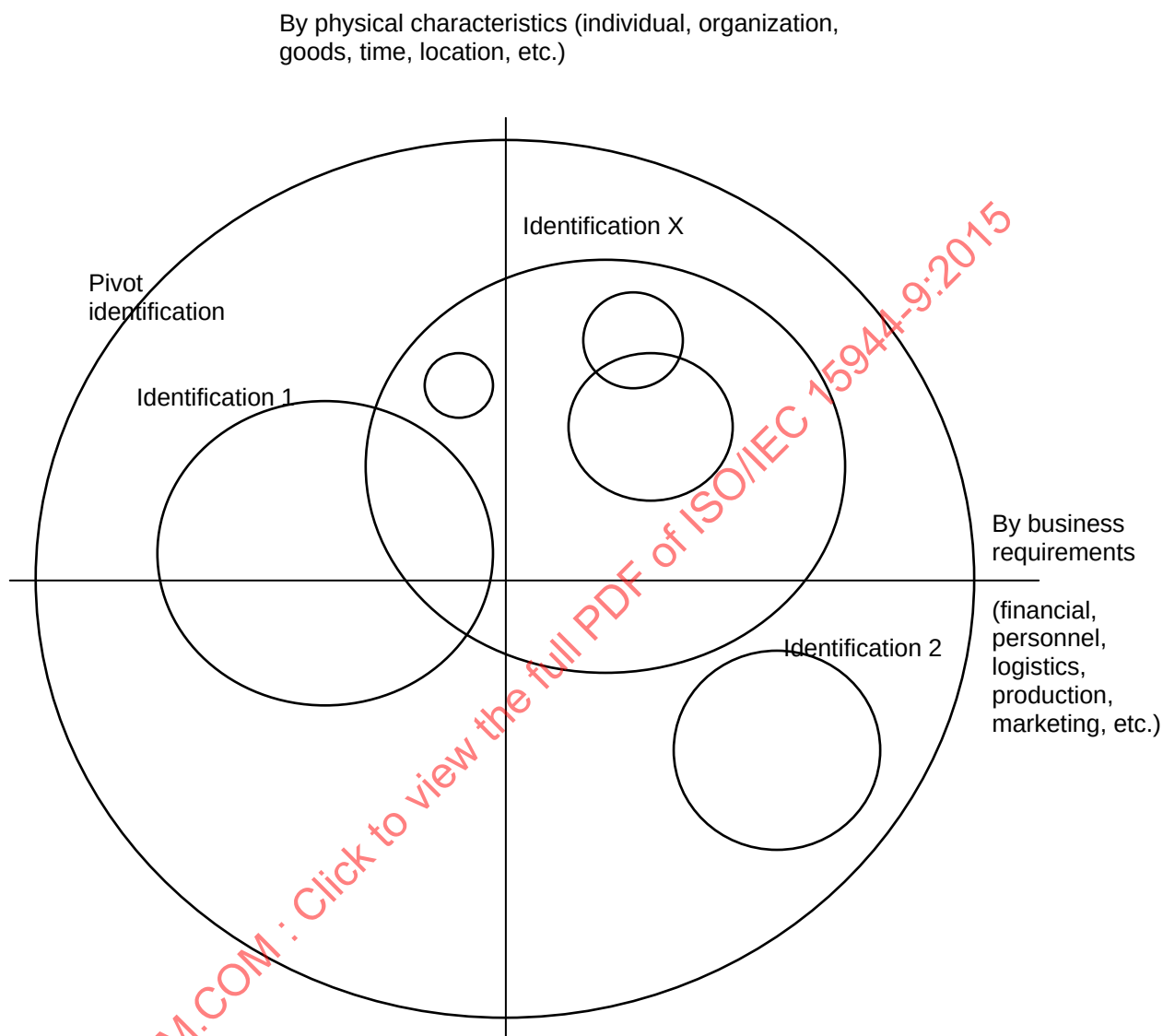


Figure 6 — The identification radar: What it covers.

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 Part 10 of ISO/IEC 15944.

Part 10 of ISO/IEC 15944 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.

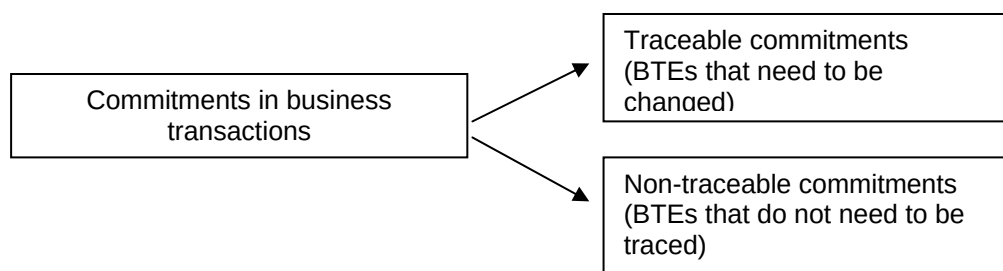


Figure 7 — Commitments including traceable and non-traceable commitments

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 identifier¹⁵), 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).

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.

¹⁵ 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.

As specified in 6.2.1, to obtain the party's identity is the minimum requirement for traceability. As specified by Part 1 of ISO/IEC 15944, 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 6.2.3 of Part 1 of ISO/IEC 15944.

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 Annex D of Part 1 of ISO/IEC 15944.

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 following Figure 8, there are two types of business events; namely, (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.

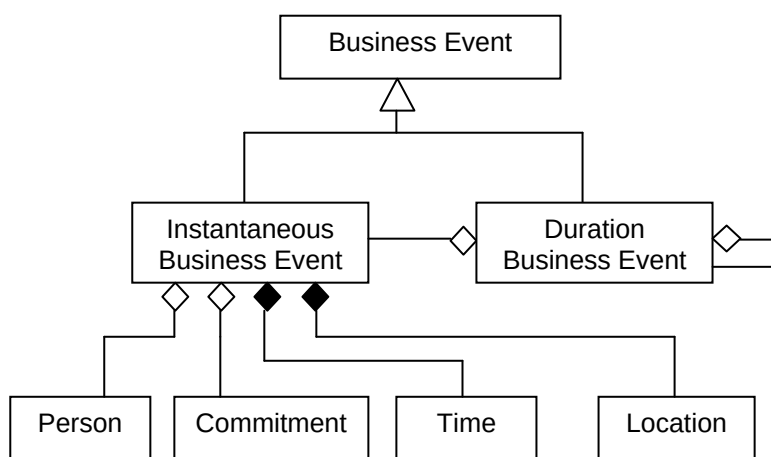


Figure 8 — Information model of business event

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 Annex D and Annex E of ISO/IEC 15955-5.

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

7.1 Introduction

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.¹⁶

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 6.2.3 of Part 1 of ISO/IEC 15944.

¹⁶ See 6.3 in Part 1 of ISO/IEC 15944.

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 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 D.5.2 in Part 1 of ISO/IEC 15944, 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. Part 8 of ISO/IEC 15944 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 must 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 Introduction

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 sub-clauses 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 6.6.4.3 in Part 5 of ISO/IEC 15944, 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 Table 6 in Part 5 of ISO/IEC 15944.

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 6.6.4.4 in Part 5, 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 of this Part of ISO/IEC 15944, 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. Part 10 of ISO/IEC 15944 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 Part 8 of ISO/IEC 15944 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 Part 8 of ISO/IEC 15944 "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 Introduction

The Open-edi collaboration space is specified in Part 4 of ISO/IEC 15944 and Part 5 of ISO/IEC 15944¹⁷. 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 6.2 in Part 8 of ISO/IEC 15944, 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: an independent view of traceability

In 5.2 of this Part of ISO/IEC 15944, 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. This is illustrated in Figure 9 below (taken from Figure 2 “Concept of a Business Collaboration” in Part 4 of ISO/IEC 15944).

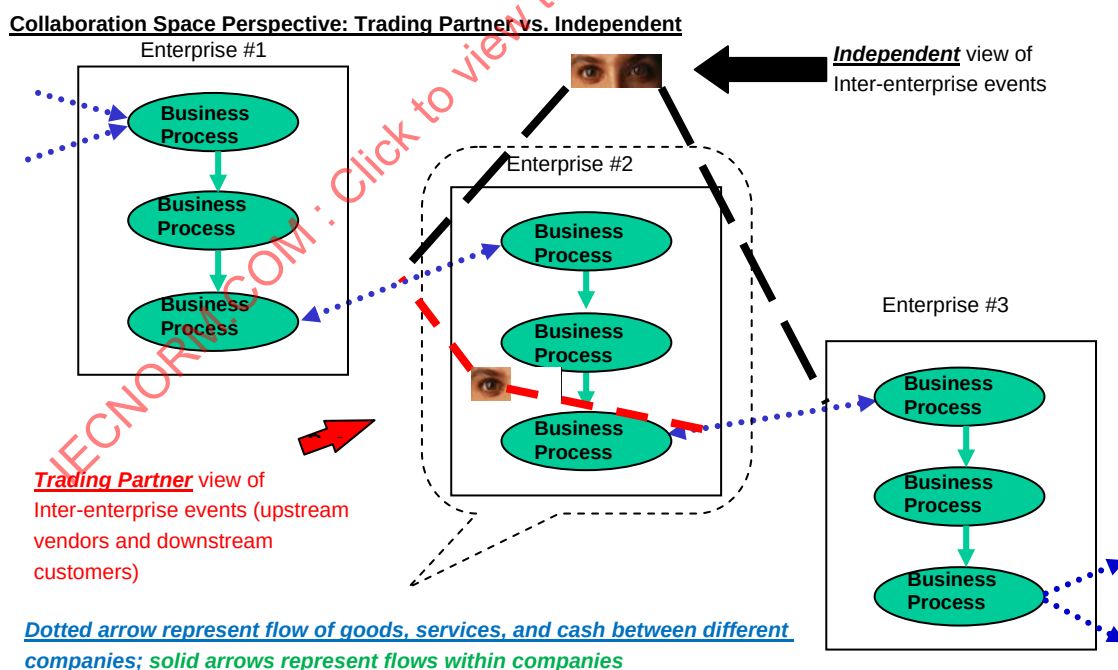


Figure 9 — Different views of business collaboration

¹⁷See 5.2 in ISO/IEC 15944-5:2008

8.3 Collaboration space: The roles of buyer, seller and regulator

As specified in detail in 5.2 in Part 5 of ISO/IEC 15944, 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 10 without the dotted lines and the italic text. The use of dotted lines and italic text in Figure 10 indicates the added traceability requirements to various aspects of collaboration space.

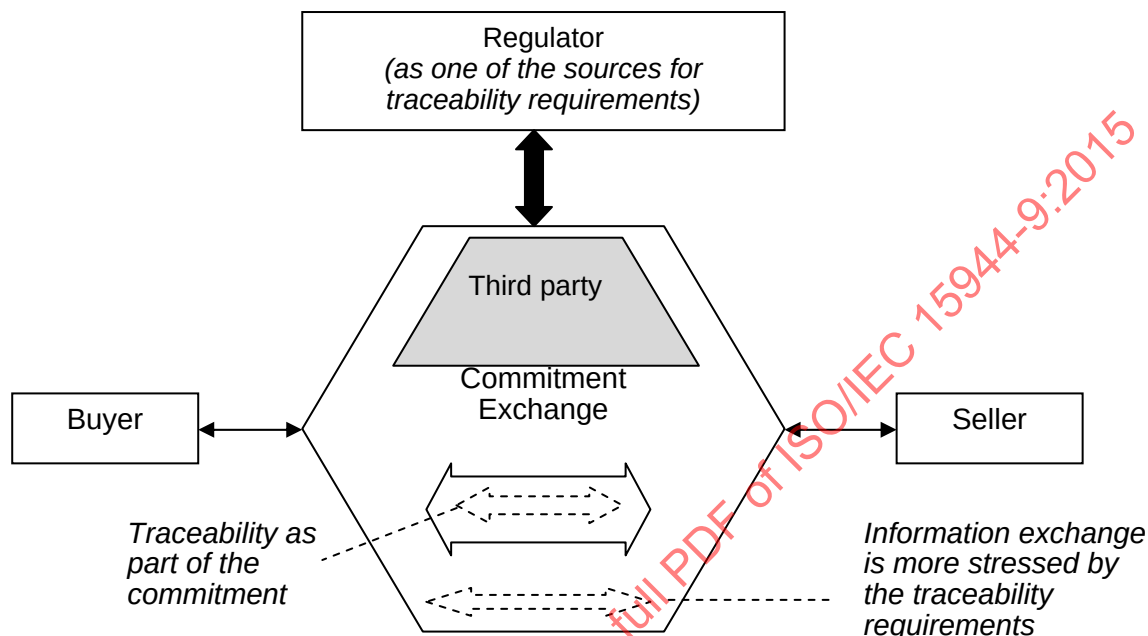


Figure 10 — Collaboration space with regulator as external constraints of traceability

When considering traceability requirements, some features need to be highlighted in the general Open-edition collaboration space. The first thing is that the regulator is one of the sources for traceability requirements, as specified in 0.3 in this Part of ISO/IEC 15944. The second issue is that traceability is part of the commitment, as specified in 6.1.2 of this Part of ISO/IEC 15944.

The third issue is that information exchange is more stressed when traceability requirements apply. The information exchange exists in every type of Open-edition 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 6.4 for detailed rules of record retention and information sharing.

9 Traceability attributes for Open-edi scenario scoping

9.1 Introduction

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

9.2 Template structure and contents

The template structure for 9.3 is defined the in Part 1 of ISO/IEC 15944, which states:

1) The template serves to identify mandatory attributes to be specified in registering the scope of a scenario. The purpose of this template is to capture in systematic, i.e., coded, form key aspects for the scoping of an Open-edi scenario and scenario components for their registration and re-use.

2) Each scoping attribute shall be specified as applicable or not applicable. These two conditions are to be coded as Yes = 1 and No = 2 Decision Code. This will allow us to :

i) support the ISO/IEC JTC1 strategic direction of "cultural adaptability" by allowing for multilingual equivalents of these two codes from a global perspective; and,

ii) facilitate computer processability, search-ability and reference-ability of these scoping attributes of Open-edi scenarios.

3) The assignment of "Scope Tag ID Code" numbers is of a block-numeric nature. For the "Scope Tag ID Codes" the block numeric numbers 1000 to 1999 are reserved. For the "Component ID Code" numbers, {See 9.2.3 below} the block numeric 2000+ has been reserved, i.e., up to "9999".

The purpose here is to ensure that all the numeric identifiers for attribute for:

i) scoping Open-edi scenarios; and,

ii) specifying Open-edi scenarios and their components will be unique, unambiguous and linguistically neutral within ISO/IEC 15944-1 as well as within their use in ISO/IEC 15944 Part 2.

4) This approach will facilitate unambiguous referencing and registration necessary for re-usability and interoperability of Open-edi scenarios and their components. It will also facilitate support of localization requirements and use of multiple linguistic equivalencies for these numeric tags, i.e., as multiple equivalent human interface equivalencies.

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 Part 9 of ISO/IEC 15944.

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 Part of ISO/IEC 15944 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 ¹⁸			
1043	1	Persons: Individual <-> Public Administration			
1044	1	Persons: Organization <-> Organizations ¹⁹			
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			

¹⁸ 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”.

¹⁹ Often referred to as “B2B” i.e. as in “business to business”.

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)
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 ²⁰			
1111		Buyer Agent			
1112		Seller Agent			
1130		Business Transaction allows for Third ²¹ Parties			
1131		By mutual agreement of buyer and seller (as internal constraints only)			
1132	1	External Constraint(s) Mandated			

²⁰ 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 8.4.2.5 in ISO/IEC 15944-1:2011.

²¹ 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 8.4.2.5 in ISO/IEC 15944-1:2011.

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)
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			
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 ²²			
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.			

²² For applicable rules, see 6.6.4.5 in ISO/IEC 15944-5:2008

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)
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) ²³			
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			

²³ A typical example here is an e-mail address or a P.O. Box address.

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)
1360		Separate Settlement			
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 ²⁴ (in support of internal and/or external constraints)			
1540		SPECIFICATION OF DISPOSITION OF RECORDED INFORMATION ²⁵			
1541		Specification of disposition of recorded information from an internal constraints perspective			
1542		Specification of disposition of recorded information from an external constraints			

²⁴ 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 6.6.4.2

²⁵ 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 6.6.4.2

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)
		(jurisdictional domain requirements) perspective			
1550		SPECIFICATION OF RETENTION TRIGGERS ²⁶			
1560		SPECIFICATION OF STATE CHANGES ²⁷			
1570		SPECIFICATION OF STORE CHANGE TYPE ²⁸			
1600		Business Requirements on FSV – No External Constraints ²⁹			
1610		Service: Information Bundle Integrity			
1620		Service: Confidentiality of IB contents			
1625		Service: Non-repudiation of receipt			
1630		Service: Proof of Time IB creation ³⁰			
1635		Service: Notarization of IBs			
1640		Service: Quality of Service (QoS)			
1700		EXTERNAL CONSTRAINTS ³¹			

²⁶ 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 6.6.4.2

²⁷ 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 6.6.4.3

²⁸ 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 6.6.4.3

²⁹ See further 6.5.2 in ISO/IEC 15944-1:2011

³⁰ Often referred to as time-stamping services

³¹ See further ISO/IEC 15944-5:2008

Annex A **(Normative)**

List of terms and definitions with cultural adaptability of traceability: ISO English and ISO French language equivalency

A.1 Introduction

This standard maximizes the use of existing standards where and whenever possible including relevant and applicable existing terms and definitions. These are presented in Clause 3 above. This Annex A contains only those new concepts and their definitions introduced in this Part 9, i.e., as ISO English and ISO French language HIEs.

The Part 7 "eBusiness Vocabulary" (a "freely available ISO standard") in its normative Annex E already contains the consolidated ISO English and ISO French language equivalents for all the other concepts and definitions found in Clause 3 of this document. Part 7 also contains ISO Russian and ISO Chinese language HIEs for all the concepts and their definitions. It is anticipated that the contents of Annex A.5 below will serve as the basis for an Addendum to Part 7 and that this Addendum will also contain the ISO Russian and ISO Chinese HIEs for the contents of Annex A.5 below.

A.2 ISO English and ISO French

This standard recognizes that the use of English and French as natural languages is not uniform or harmonized globally. (Other examples include use of Arabic, German, Portuguese, Russian, Spanish, etc., as natural languages in various jurisdictional domains).

Consequently, the terms "ISO English" and "ISO French" are used here to indicate the ISO's specialized use of English and French as natural languages in the specific context of international standardization, i.e., as a "special language".

A.3 Cultural adaptability and quality control

ISO/IEC JTC1 has "cultural adaptability" as the third strategic direction which all standards development work should support. The two other existing strategic directions are "portability" and "interoperability". Not all ISO/IEC JTC1 standards are being provided in more than one language, i.e., in addition to "ISO English," in part due to resource constraints.

Terms and definitions are an essential part of a standard. This Annex serves to support the "cultural adaptability" aspects of standards as required by ISO/IEC JTC1. Its purpose is to ensure that if, for whatever reason, an ISO/IEC JTC1 standard is developed in one ISO/IEC "official" language only, at the minimum the terms and definitions are made available in more than one language.³²

A key benefit of translating terms and definitions is that such work in providing bilingual/multilingual equivalency:

- should be considered a "quality control check" in that establishing an equivalency in another language ferrets out "hidden" ambiguities in the source language. Often it is only in the translation that ambiguities in the meaning, i.e., semantics, of the term/definition are discovered. Ensuring

³² Other ISO/IEC member bodies are encouraged to provide bilingual/multilingual equivalencies of terms/definitions for the language(s) in use in their countries.

bilingual/multilingual equivalency of terms/definition should thus be considered akin to a minimum "ISO 9000-like" quality control check; and,

- is considered a key element in the widespread adoption and use of standards world-wide, especially by users of ISO/IEC 15944 who include those in various industry sectors, within a legal perspective, policy makers and consumer representatives, other standards developers, IT hardware and service providers, etc.

A.4 Organization of Annex A – Consolidated list in matrix form

The terms/definitions are organized in matrix form in alphabetical order (English language). The columns in the matrix are as the follows:

Table A.1 — Columns in Table A.2

Col. No.	Use
	IT-Interface – Identification
1	eBusiness Vocabulary ID (as assigned in Part 7 of ISO/IEC 15944, in accordance with the rules found in 5.3.6 and its Annex G)
2	Source. International standard referenced or that of Part 8 of ISO/IEC 15944 itself.
	Human Interface Equivalent (HIE) Components
3	ISO English Language – Term
4	Gender of ISO English Language Term+
5	ISO English Language – Definition
6	ISO French Language - Term
7	Gender of the ISO French language Term+
8	ISO French Language - Definition

The primary reason for organizing the columns in this order is to facilitate the addition of equivalent terms/definitions in other languages as added sets of paired columns, (e.g., Spanish, Japanese, German, Russian, Chinese, etc)³³.

+ The codes representing gender of terms in natural languages are those found in 5.3.4 “*Rules governing the specification of the gender of a term*”, and especially its Table 5 – “*ISO/IEC 15944-5:10 Codes representing grammatical gender in natural languages*”;

- ISO English, in Column 4, the gender code = “99” since the English language does not have gender in its grammar; and,
- ISO French, in Column 7, the gender codes are 01 = masculine, 02 = feminine and 03 = neuter

³³ See further Part 7 “eBusiness Vocabulary” of ISO/IEC 15944 for an implementation of this approach.

A.5 Matrix of new definitions and terms introduced in Part 9 with cultural adaptability of ISO English and ISO French language equivalency

The following Table A.2 contains entries for those definitions and terms found in Clause 3 which are new to the Open-edi and eBusiness family of standards. This is because Part 7 which is the consolidated eBusiness Vocabulary already contains human interface equivalents (HIEs) in ISO French, ISO Russian, and ISO Chinese.

Table A.2 —List of traceability terms and definitions with cultural adaptability of: ISO English and ISO French language equivalency

IT-Interface		Human Interface Equivalent (HIE) Components					
Identification		ISO English			ISO French		
eBus. Vocab. ID	Source Ref. ID	Term	G	Definition	Term	G	Definition
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
D291	ISO/IEC 15944-9:2015 (3.14)	business transaction traceability (BTT)	99	requirement to provide set(s) of recorded information (SRIs) on the status and/or nature of a good, service and/or right, which is the goal of the business transaction, in its transfer, transport, and/or location(s), from a seller to a buyer, as either: (1) agreed to by the parties to a business transaction as part of internal constraints; and/or, (2) imposed by a regulator(s) as applicable external constraints, based on the nature of the good, service, and/or right, which is the goal of the business transaction NOTE 1 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	traçabilité d'une transaction d'affaires (BTT)	02	exigence de fournir un (ou des) ensemble(s) d'information enregistrée (SRI) sur le statut et/ou la nature d'un bien, d'un service et/ou d'un droit, qui est le but de la transaction d'affaires, dans son transfert, transport, et/ou emplacement(s), d'un vendeur à un acheteur, telle que (1) convenue entre les parties d'une transaction d'affaires faisant partie de contraintes externes; et/ou (2) imposée par un ou des régulateur(s) en tant que contraintes externes applicables, basée sur la nature du bien, service, et/ou droit, qui est le but de la transaction d'affaires NOTE 1 Les exigences de traçabilité de nature de contraintes internes doivent être spécifiées et convenues par les parties d'une transaction

IT-Interface		Human Interface Equivalent (HIE) Components					
Identification		ISO English			ISO French		
eBus. Vocab. ID	Source Ref. ID	Term	G	Definition	Term	G	Definition
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				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 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. NOTE 3 SRIs required to support traceability requirements manifest themselves as semantic components (SCs) as part of IBs in Open-edi scenarios. NOTE 4 External constraints pertaining to traceability requirements may have state changes and record retention requirements which are unique to that external constraint. NOTE: 5 There is a need to follow and have			d'affaires comme faisant partie du processus et des composants de données dans un scénario d'EDI ouvert avant ou lors de la phase de négociation, et inclure ceux qui s'appliquent à la phase d'actualisation et, selon le cas, à la phase de post-actualisation. NOTE 2 Les exigences de traçabilité de nature de contraintes externes doivent être (1) spécifiées durant la phase de planification ou d'identification du composant du processus; et (2) être achevées durant la phase de négociation. Cela peut inclure l'obtention d'ensembles d'information enregistrée sous forme d'enregistrements, d'identificateurs et/ou d'approbation par des autorités de réglementation applicables avant l'actualisation de l'instanciation d'une transaction d'affaires. NOTE 3 Les SRI exigés à l'appui des exigences de traçabilité se manifestent comme composants sémantiques (SC) faisant partie d'IBs dans des scénarios d'EDI

IT-Interface		Human Interface Equivalent (HIE) Components					
Identification		ISO English			ISO French		
eBus. Vocab. ID	Source Ref. ID	Term	G	Definition	Term	G	Definition
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				evidence in place to allow traceability to occur. The nature of Open-edi business transaction being based on rules, etc., ensures that evidence can be followed.			ouvert. NOTE 4 Les contraintes externes relatives aux exigences de traçabilité peuvent avoir des changements d'état et des exigences de rétention d'enregistrement qui sont propres à cette contrainte externe. NOTE 5 Il existe un besoin de suivi et de preuve pour qu'une traçabilité se produise. La nature de la transaction d'EDI ouvert basée sur des règles, etc., assure le suivi de la preuve.
D292	ISO/IEC 15944-9:2015 (3.53)	master data (in a business transaction)	99	set(s) of recorded information (SRIs) held by a Person that describes the entities (and business objects) that are both independent and fundamental for that Person and that it needs to reference in order to perform its business transaction (and/or commitments). NOTE 1 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	données de base (dans une transaction d'affaires)	02	ensemble(s) d'information enregistrée (SRI) détenu(s) par une Personne et qui décrit les entités (et objets d'affaires) indépendants et fondamentaux pour cette Personne , et auxquels elle doit faire référence afin d'exécuter sa transaction d'affaires (et/ou engagements). NOTE 1 Les données de base sont définies comme ensemble(s) d'information enregistrée (SRI) ayant les caractéristiques suivantes : (a) de nature

IT-Interface		Human Interface Equivalent (HIE) Components					
Identification		ISO English			ISO French		
eBus. Vocab. ID	Source Ref. ID	Term	G	Definition	Term	G	Definition
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				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. NOTE 2 Adapted from 14.9 in ISO 22745-2:2010			permanente ou durable; (b) relativement constantes dans le temps et non sujettes à des changements fréquents; (c) accessibles et utilisables par des processus d'affaires et applications de système(s) TI multiples; (d) exigence de tracer et vérifier les échanges d'engagements (de toute nature) relatifs aux échanges d'engagements dans une transaction d'affaires; (e) peuvent être soit neutres, soit dépendantes d'une relation. NOTE 2 Adapté de 14.9 dans l'ISO 22745-2:2010
D293	ISO/IEC 15944-9:2015 (3.95)	traceability data	99	specified set(s) of recorded information (SRIs) of a traceability nature which is required to be included in the modelling of a business transaction via an Open-edi scenario NOTE 1 Sets of recorded information (SRIs) used as Semantic Components (SCs) and/or Information Bundles (IBs) 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.	données de traçabilité	02	ensemble(s) d'information enregistrée spécifié, de nature de traçabilité, exigé pour être inclus dans la modélisation d'une transaction d'affaires dans un scénario d'EDI ouvert NOTE 1 Des ensembles d'information enregistrée (SRI) utilisés comme composants sémantiques (SC) et/ou faisceaux d'information (IB) en modélisant une transaction d'affaires peuvent aussi servir de

IT-Interface		Human Interface Equivalent (HIE) Components					
Identification		ISO English			ISO French		
eBus. Vocab. ID	Source Ref. ID	Term	G	Definition	Term	G	Definition
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				NOTE 2 Traceability data serves as evidence in support of traceability requirements.			données de traçabilité. En ce cas, elles doivent être aussi identifiées et étiquetées comme telles dans les exigences de traçabilité. NOTE 2 Les données de traçabilité servent comme preuve à l'appui des exigences de traçabilité.
D294	ISO/IEC 15944-9:2015 (3.96)	traceable commitment	99	any aspect of commitment(s) forming part of a business transaction which is required to be traced based on agreed upon internal constraints for that business transaction and/or on external constraints , including those of legal traceability requirements of applicable jurisdictional domains invoked by the nature of the business transaction	engagement traçable	01	tout aspect d' engagement(s) faisant partie d'une transaction d'affaires exigé pour être tracé et basé sur des contraintes externes convenues pour cette transaction d'affaires et/ou des contraintes externes , y compris les exigences de traçabilité légales des domaines juridiques applicables invoqués par la nature de la transaction d'affaires

Annex B (Informative) Introduction to GS1 Glossary

B.1 Introduction

This Part of ISO/IEC 15944 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 Part of ISO/IEC 15944 provides traceability requirements in an Open-edi environment. This Annex B is based on the GS1 global traceability standard (Sept. 1, 2007 version)³⁴. Many of these concepts in its glossary are referenced by the development of this Part by adaption of their definitions to the Open-edi environment.

In the context of the linkages between this Part 9 and the GS1 Glossary, three types of interoperability can be viewed at. They are:

- 1) Type 1 – GS1 Glossary Concept not adopted in Clause 3. However, the concept has been referenced in the development of this Part 9. Entries of this nature are listed as “as is” in B.2 below, i.e., with no indicator.
- 2) 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 below with indicator “*” following the entry for the GS1 term.
- 3) Type 3 – This Part 9 ISO standard has adopted the term and/or definition to the Open-edi and eBusiness environment. Type 3 GS1 concepts are fully interoperable with Part 9 the Open-edi environment. They are listed in B.2 below 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.

Apply

Physically mark or attach Assign Designate or allocate.

Batch / Lot Number

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

Brand Owner

³⁴ <http://www.gs1.org/gsmf/kc/traceability>

The party that is responsible for allocating GS1 System numbering and bar code symbols on a given trade item. The administrator of a GS1 Company Prefix.

And / or the party that is the ultimate authority for the trade item.

And / or the owner of the product specifications.

And / or responsible for placing a traceable item into commerce.

Buyer *

The Party to which the traceable item is sold.

Consumer *

One that consumes, especially one that acquires goods or services for direct use or ownership.

Consumer Unit

The trade item intended to be sold to the end consumer.

Collect

Gather required information by any means.

Event *

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

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).

Extension

An extension is a standard defining additional requirements to a generic standard required to meet specific business needs or practices. An industry specific extension to the GS1 Global Traceability Standard could set up, for example, additional data to record or leverage minimum requirements concerning the use of bar-codes or RFID. It is different from “user guidelines” the purpose of which is to explain in detail an existing standard in a given context (e.g., country, type of product) and to help the user during the implementation phase.

GLN (Global Location Number)

A number that uses the EAN/UCC-13 Data Structure to identify physical, functional, or legal entities.

Global Trade Item Number (GTIN)

A Global Trade Item Number® may use the EAN/UCC-8, UCC-12, EAN/UCC-13, or EAN/UCC-14 Data Structure.

Global Returnable Asset Identifier (GRAI)

A number that uses the EAN/UCC-13 or UCC-12 Data Structure to identify Asset Type combined with an optional serial number.

GS1 System

The specifications, standards, and guidelines administered by GS1.

Homogeneous Pallet

Homogeneous Pallet is composed of identical products (identified with the same trade item identification) originating from the same Batch / Lot.

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 / CD 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
- Relatively constant across time, not being subject to frequent change
- Accessed / used by multiple business processes and system applications.
- Can either be neutral or relationship dependent.

Mixed Pallet

Mixed Pallet is composed of one or more different products (identified with different trade item identification).

Party *

A party (or) location is any legal, functional or physical entity involved at any point in any supply chain and

upon which there is a need to retrieve pre-defined information. A party is uniquely identified by a GS1 Global Location Number.

Process *

A series of actions or steps towards achieving a particular end. Examples of common processes include Production, Transformation, Quality Control, Storage, Transportation, Movement, Recycle, Return, Packing, Receiving, and Traceability.

Record *

Act of creating a permanent piece of information constituting an account of something that has occurred.

Seller *

The party selling the traceable item to a buyer. Serial Shipping Container Code (SSCC) The unique identification of a logistic unit or a shipment using an 18-digit data structure.

Serialized Global Trade Identification Number (SGTIN)

SGTIN is a method of identifying unique items at the unit or retail level as well as at the case and carton levels. It is composed of a GS1 assigned Company Prefix & Item Reference (GTIN), combined with a Serial Number. Where UCC/EAN bar codes have traditionally been used, the SGTIN specification combined with an RFID tag can give visibility beyond the Item Reference right down to the exact serial number of the item.

Share

Act of exchanging information about an entity or traceable item with another Traceability Partner.

Shipment

An item or group of items delivered to one party's location at one moment in time that have undergone the same dispatch and receipt processes.

Store Data

Keeping information available by any method.

Traceability *

[ISO 9001: 2000] Traceability is the ability to trace the history, application or location of that which is under consideration.

Traceability Data **

Any information about the history, application or location of a traceable item.

This may be either master data or transactional data.

Traceability Data Creator

The Traceability Partner that generates traceability information.

Traceability Data Recipient

The Traceability Partner authorized to view, use, and download traceability information.

Traceability Data Source

The Traceability Partner that provides the traceability information.

Traceability Partner

Any Trading Partner involved in the traceability process e.g., Traceable Item Creator, Traceable Item Source, Traceable Item Recipient, Transporter, Brand Owner, Traceability Data Source, and Traceability Data Recipient.

Traceable Item **

A physical object where there may be a need to retrieve information about its history, application, or location. The level at which the traceable item is defined within a product packaging or logistical hierarchy is dependent on the industry and degree of control required. Could be tracked, traced, recalled or withdrawn. Could exist in multiple locations at the same time (for example, if identified at the trade item and batch level).

A traceable item may be related to another traceable item. See also definition for process

Traceable Item Creator

The Traceability Partner that generates a traceable item, or makes a distinct traceable item by transformation of one or more traceable items.

Traceable Item Recipient

The Traceability Partner that receives the traceable item.

Traceable Item Source

The Traceability Partner that dispatches or provides a traceable item.

Trace Request

A formal inquiry about the history, application, or location of a traceable item. A request can trigger subsequent trace requests up or down the supply chain in order to fulfill the original request. The Trace Request Initiator requires a response from the data source.

Trace Request Initiator

The person who starts the trace request.

Tracing

Tracing is defined as the ability to identify the origin, attributes, or history of a particular traceable item located within the supply chain by reference to records held.

Tracking

Tracking is defined as the ability to follow the path of a traceable item through the supply chain as it moves among parties.

Trade Item

A trade item is a product, on which there is a need to retrieve predefined information and that may be priced or ordered or invoiced at any point in the supply chain.

Trading Partner

Any Supply Chain Partner that has a direct impact on the flow of goods through the supply chain. Examples include Third Party Logistics Provider, Manufacturer, Retailer, and Grower.

Transactional Data

Information necessary for the business process being executed. Example: Item codes and ordered quantities are transactional as these are mandatory fields within a purchase order and may vary by purchase order.

Transformation

A change to the nature of a traceable item that changes the identity and/or the characteristics of the traceable item. The act of changing the item such as combining ingredients to make a finished product or case picking to create a new pallet. Transformation can be production, aggregation, grouping, splitting, mixing, packing and repacking traceable items.

Transporter

The Traceability Partner that receives, carries, and delivers one or more traceable items from one point to another without transforming the traceable item(s). Typically only has possession, custody, or control of a traceable item, but may have ownership.

IECNORM.COM : Click to view the full PDF of ISO/IEC 15944-9:2015