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Part 9:

Business transaction traceability framework for commitment exchange

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

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Contents

0	Introduction	viii
0.1	Purpose and overview	
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	
0.5	Representation of rules and guidelines	
0.6	Organization and description of document	
1	Scope	
1.1	Statement of scope	
1.2	Exclusions	
1.2.1	Functional Services View (FSV)	
1.2.2	Internal behaviour of organizations (and public administration)	2
1.2.3	Metrological traceability	
1.3	Aspects not currently addressed	
2	Normative references	
3	Terms and definitions	
4	Symbols and abbreviations	
5	Principles and assumptions	
5.1	Introduction	
5.2	Important Open-edi characteristics that provide support for traceability	
5.3		
5.3.1	Principles for traceability standards.iteh.ai)	28
5.3.2	Traceability principle 1: Unambiguous identification	
5.3.3	Traceability principle 2: Record-keeping 944-9:2015	29
5.3.4	Traceability/principle 3: Defined level of granularity32a-7de1-4d76-920d-	
5.3.5	Traceability principle 4: Ensuring traceability among parties	
5.3.6	Traceability principle 5: Precision in temporal and/or location referencing	
5.4	Two types of tracking	
6	Traceability reference model	
6.1	Introduction	
6.2	Traceability data in business transaction	
6.2.1	Predefined and structured traceability data	
6.2.2	Predefined contents of traceability data	
6.3	General content of traceability data	
6.3.1	General rules for identification of BTEs	34
6.3.2	Integration and interoperability of identification schema	
6.3.3	Identification and description of traceable commitments and non-traceable commitments	
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	
7.4	Traceability requirements on process	
7.5	Traceability requirements on data	43

7.5.1	Introduction	
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	
7.5.7	Master data (in a business transaction)	
8	Open-edi collaboration space and traceability	
8.1	Introduction	
8.2	Basic Open-edi collaboration space: an independent view of traceability	
8.3	Collaboration space: The roles of buyer, seller and regulator	
9	Traceability attributes for Open-edi scenario scoping	
	oduction	
	nplate 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	
A.1	Introduction	
A.2	ISO English and ISO French	
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	
B.1		
B.2	List of concepts in the glossary of GS1 global traceability standard	61
	C (Informative) Date/time referencing and and a state as it also a	67
C.1	Introduction – Need for precise date/time referencing in support of traceability	07
0.1	requirements	67
		0/
<u> </u>		
C.2	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944	
-	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding	67
Annex	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71
Annex D.1	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71
Annex D.1 D.2	Extract from 6.6.4.5 "Date/time referencing [®] in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 71
Annex D.1 D.2 D.3	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 71
Annex D.1 D.2 D.3	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 71 72
Annex D.1 D.2 D.3	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 71 72
Annex D.1 D.2 D.3	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 71 72
Annex D.1 D.2 D.3 Annex	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 71 72 75
Annex D.1 D.2 D.3 Annex	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 72 75 75
Annex D.1 D.2 D.3 Annex E.1 E.1.1	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 72 75 75 75
Annex D.1 D.2 D.3 Annex E.1 E.1.1 E.1.2	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 72 75 75 75
Annex D.1 D.2 D.3 Annex E.1 E.1.1	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 72 75 75 75
Annex D.1 D.2 D.3 Annex E.1 E.1.1 E.1.2	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 72 75 75 75 75
Annex D.1 D.2 D.3 Annex E.1 E.1.1 E.1.2 E.1.3	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 72 75 75 75 75 75
Annex D.1 D.2 D.3 Annex E.1 E.1.1 E.1.2 E.1.3 E.2	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 72 75 75 75 75 75 76 77
Annex D.1 D.2 D.3 Annex E.1 E.1.1 E.1.2 E.1.3 E.2 E.2.1	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 72 75 75 75 75 75 75
Annex D.1 D.2 D.3 Annex E.1 E.1.1 E.1.2 E.1.3 E.2 E.2.1 E.2.2	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 72 75 75 75 75 75 77 77 77
Annex D.1 D.2 D.3 Annex E.1 E.1.1 E.1.2 E.1.3 E.2 E.2.1 E.2.2 E.2.3	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 72 75 75 75 75 75 77 77 77 77
Annex D.1 D.2 D.3 Annex E.1 E.1.1 E.1.2 E.1.3 E.2 E.2.1 E.2.2 E.2.3 Annex	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 72 75 75 75 75 75 76 77 77 77 77 77 78 79
Annex D.1 D.2 D.3 Annex E.1 E.1.1 E.1.2 E.1.3 E.2 E.2.1 E.2.2 E.2.3 Annex F.1	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 72 75 75 75 75 75 75 76 77 77 77 77 77 77 77 77
Annex D.1 D.2 D.3 Annex E.1 E.1.1 E.1.2 E.1.3 E.2 E.2.1 E.2.2 E.2.3 Annex F.1 F.2	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 72 75 75 75 75 75 75 76 77 77 77 77 77 77 77 77
Annex D.1 D.2 D.3 Annex E.1 E.1.1 E.1.2 E.1.3 E.2 E.2.1 E.2.2 E.2.3 Annex F.1 F.2	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 72 75 75 75 75 75 75 75 75 75 77 77 77 78 79 79 80
Annex D.1 D.2 D.3 Annex E.1 E.1.1 E.1.2 E.1.3 E.2 E.2.1 E.2.2 E.2.3 Annex F.1 F.2 Annex	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 72 75 75 75 75 75 75 75 75 75 75 76 77 77 77 78 79 79 80 82
Annex D.1 D.2 D.3 Annex E.1 E.1.1 E.1.2 E.1.3 E.2 E.2.1 E.2.2 E.2.3 Annex F.1 F.2	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 72 75 75 75 75 75 75 75 75 75 75 76 77 77 77 78 79 79 80 82
Annex D.1 D.2 D.3 Annex E.1 E.1.1 E.1.2 E.1.3 E.2 E.2.1 E.2.2 E.2.3 Annex F.1 F.2 Annex	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 72 75 75 75 75 75 75 75 75 75 75 76 77 77 77 78 79 79 80 82
Annex D.1 D.2 D.3 Annex E.1 E.1.1 E.1.2 E.1.3 E.2 E.2.1 E.2.2 E.2.3 Annex F.1 F.2 Annex G.1	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944 D (Informative) Introduction to Annex D and Annex E in Part 5 of ISO/IEC 15944 regarding business location	67 71 71 72 75 75 75 75 75 75 75 77 77 77 77 78 79 80 82 82
Annex D.1 D.2 D.3 Annex E.1 E.1.1 E.1.2 E.1.3 E.2 E.2.1 E.2.2 E.2.3 Annex F.1 F.2 Annex G.1	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944	67 71 71 72 75 75 75 75 75 75 75 77 77 77 77 78 79 80 82 82
Annex D.1 D.2 D.3 Annex E.1 E.1.1 E.1.2 E.1.3 E.2 E.2.1 E.2.2 E.2.3 Annex F.1 F.2 Annex G.1 G.2	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944	67 71 71 72 75 75 75 75 75 75 75 75 75 75 77 77 77 77 78 79 80 82 82
Annex D.1 D.2 D.3 Annex E.1 E.1.1 E.1.2 E.1.3 E.2 E.2.1 E.2.2 E.2.3 Annex F.1 F.2 Annex G.1 G.2 G.3	Extract from 6.6.4.5 "Date/time referencing" in Part 5 of ISO/IEC 15944	67 71 71 72 75

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

iTeh STANDARD PREVIEW

Table 1 —	Attributes for scenario scoping relation in the science in the sci	.50
Table A.1 —	Attributes for scenario scoping rds.iten.ai) Columns in Table A.2	.58
	List of traceability terms and definitions with cultural adaptability of: ISO English and	
	ISO French language equivalency	.59
	967d12b361d5/iso-iec-15944-9-2015	

Foreword

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

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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-edi
- Part 12: Privacy protection requirements on information life cycle management (ILCM) in EDI
- Part 20: Linking business operational view to functional service view

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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.

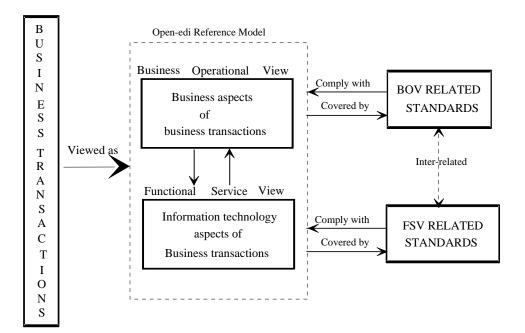
Jurisdictional domains are the primary source of external constraints on a business transaction. Traceability requirements in turn are a common requirement of most jurisdictional domains, although they may result from explicit scenario demands from or on the parties to a business transaction, as well as the goal, i.e., nature of the business transaction.

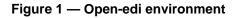
In the actualization and post-actualization phases of a business transaction, traceability is needed for the movement of goods, services and/or rights from seller to buyer, and for the associated payment from buyer to seller. Depending on the nature of the business transaction, traceability may also 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 Openedi 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" RD PREVIEW

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 Niew/(BOV)! The second is the Functional Service View (ESV). Figure 1 from ISO/IEC 14662 illustrates the Open-edi environment.1d5/iso-iec-15944-9-2015





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 Openedi 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.

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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.

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.

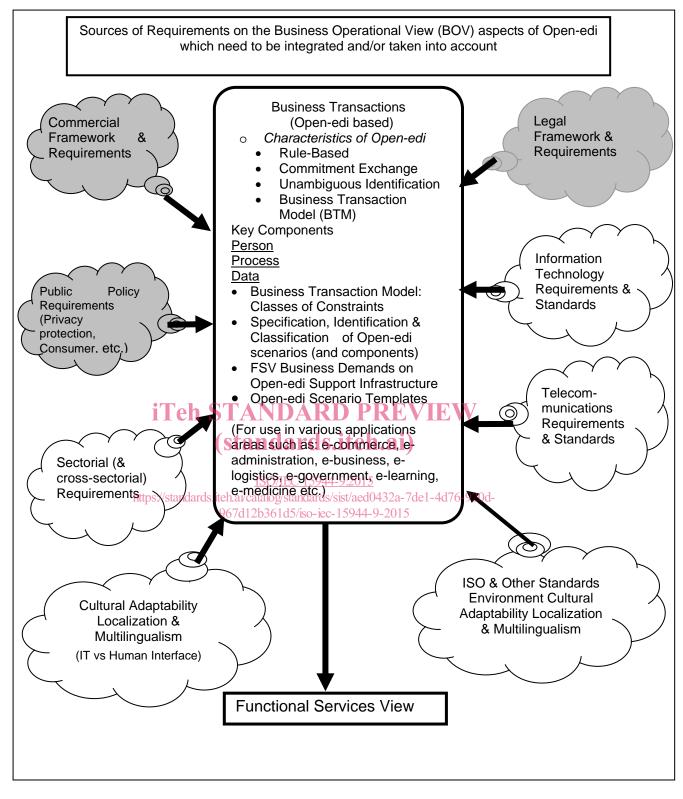


Figure 2 — Integrated view – Business Operational Requirements

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;
- I) to communicate information to relevant stakeholders and consumers. VIEW

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.

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- 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.

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<u>ISO/IEC 15944-9:2015</u> https://standards.iteh.ai/catalog/standards/sist/aed0432a-7de1-4d76-920d-967d12b361d5/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.

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

- <u>ISO/IEC 15944-9:2015</u> 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