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Information technology — Business operational view

Part 1: Operational aspects of open-edi for implementation

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National foreword

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Part 1: Operational aspects of open-edi for implementation

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Contents

Page

Foreword ... **vi**
Introduction ... **vii**
1 Scope ... **1**
2 Normative references ... **1**
3 Terms and definitions ... **1**
4 Abbreviated terms ... **11**
5 Characteristics of Open-edi ... **12**
5.1 General ... 12
5.2 Actions based on following clear, predefined rules ... 13
5.3 Commitment of the parties involved ... 13
5.4 Communications among parties are automated ... 13
5.5 Parties control and maintain their states ... 13
5.6 Parties act autonomously ... 14
5.7 Multiple simultaneous transactions can be supported ... 14
6 Components of a business transaction ... **14**
6.1 General ... 14
6.1.1 Overview ... 14
6.1.2 Standard based on rules and guidelines ... 15
6.1.3 Business transaction: commitment exchange added to information exchange ... 16
6.1.4 Business transaction: unambiguous identification of entities ... 19
6.1.5 Business transaction model: key components ... 21
6.1.6 Business transaction model: classes of constraints ... 22
6.2 Rules governing the Person component ... 24
6.2.1 Purpose ... 24
6.2.2 Person, personae, identification and Person signature ... 24
6.2.3 Person — Identity and authentication ... 28
6.2.4 Person and roles — Buyer and seller ... 31
6.2.5 Person and delegation to “agent” and/or “third party" ... 31
6.2.6 Person and external constraints — The "regulator" ... 32
6.2.7 Person and external constraints: individual, organization, and public administration ... 32
6.2.8 Person and external constraints: consumer and vendor ... 36
6.3 Rules governing the process component ... 36
6.3.1 Overview ... 36
6.3.2 Planning ... 37
6.3.3 Identification ... 38
6.3.4 Negotiation ... 38
6.3.5 Actualization ... 39
6.3.6 Post-actualization ... 39
6.4 Rules governing the data component ... 40
6.4.1 Recorded information ... 40
6.4.2 Predefined and structured data elements ... 41
6.5 Business requirements on the FSV (Business demands on Open-Edi Support Infrastructure) ... 43
6.5.1 Overview ... 43
6.5.2 Internal constraints (self-imposed) ... 44
6.5.3 External constraints ... 45
6.5.4 BOV requirements on the FSV for security methods and techniques ... 46
6.5.5 Liability of repositories ... 46
7 Basic principles, rules and guidelines for scoping Open-edi scenarios ... **46**
7.1 Basic principles ... 46
7.2 Rules for scoping Open-edi scenarios ... 47

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Documents
Document Sharing Hub
Full document details: BS ISO/IEC 15944-1:2025

7.3 Template for specifying scope of an Open-edi scenario ... 49
7.3.1 Introduction to template ... 49
7.3.2 Template for specifying the scope of an Open-edi scenario ... 50

8 Rules for specification of Open-edi scenarios and their components ... 55
8.1 Basic principles ... 55
8.2 OES demands on interoperability ... 57
8.3 Rules for specification of Open-edi scenarios and scenario attributes ... 58
8.3.1 Open-edi scenario rules ... 58
8.3.2 Open-edi scenario (OeS) attributes and associated rules ... 59
8.4 Rules for specification of Open-edi roles and role attributes ... 63
8.4.1 Rules governing roles ... 63
8.4.2 Role attributes and associated rules ... 64
8.4.3 Role demands on Open-edi Parties ... 67
8.4.4 Interoperability demands among roles ... 68
8.4.5 Role states ... 68
8.4.6 Role transitions ... 68
8.4.7 Role events ... 69
8.4.8 Role actions ... 69
8.4.9 Role internal function ... 70
8.4.10 Role demand on Open-edi Support Infrastructure (OeSI) ... 70
8.5 Rules for specification of Open-edi Information Bundles (IBs) and IB attributes ... 70
8.5.1 Rules governing Information Bundles (IBs) ... 70
8.5.2 Information Bundle (IB) attributes and associated rules ... 71
8.5.3 IB information for interoperability ... 74
8.5.4 IB demands on Open-edi Support Infrastructure (OeSI) ... 74
8.5.5 Rules for the specification of Semantic Components and Semantic Component attributes ... 75
8.6 Business requirements on FSV (business demands on Open-edi Support Infrastructure) ... 77

9 Primitive Open-edi scenario template ... 78
9.1 Purpose ... 78
9.2 Consolidated template for specifying attributes of Oen-edi scenario, roles and Information Bundles (IBs) ... 78
9.2.1 IT-interface needs perspective ... 79
9.2.2 Human Interface Equivalent (HIE) needs perspective ... 79
9.2.3 Consolidated template of attributes of Open-edi scenarios, roles and Information Bundles ... 79

10 Requirements on Open-edi description techniques ... 81
10.1 Overview ... 81
10.2 General requirements on Open-edi description techniques ... 81
10.3 Requirements on OeDTs for roles ... 82
10.4 Requirements on OeDTs for Information Bundles ... 83

Annex A (normative) **Consolidated controlled vocabulary definitions and associated terms, as human interface equivalents (HIEs), English and French language equivalency in the IT standardization context ... 84**

Annex B (normative) **Codes representing presence-type attributes: mandatory, conditional, mandatory subject to a conditional, optional and not applicable ... 87**

Annex C (informative) **Unambiguous identification of entities in (electronic) business transactions ... 90**

Annex D (informative) **Existing standards for the unambiguous identification of Persons in business transactions (organizations and individuals) and some common policy and implementation considerations ... 96**

Annex E (informative) **Business transaction model: Person component ... 114**

Annex F (informative) **Business transaction model — Process component ... 146**

Annex G (informative) **Business transaction model: data component ... 163**

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Documents
Document Sharing Hub
Full document details: BS ISO/IEC 15944-1:2025

Annex H (informative) **Scenario descriptions using the Open-edi scenario template: "Telecommunications Operations Map" example** **176**

Bibliography **210**

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Foreword

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

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

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

This third edition cancels and replaced the second edition (ISO/IEC 15944-1:2011), of which it constitutes a minor revision.

The changes are as follows:

— Clause 1 (Scope) has been amended to delete a quote of text of ISO/IEC 14662:2010, Clause 4. (However ISO/IEC 14662 remains a normative reference for this document);

— Clause 2 (Normative references) has been updated, a number of references have been moved to the Bibliography;

— Clauses and annexes have been aligned to changes in ISO/IEC Directives, Part 2.

— minor edits of a temporal nature with respect to dated references, changes in URLs referenced, change of font to Cambria, as well as application of the new “ISO House Style”, etc. have been applied.

This document is intended to be used in conjunction with ISO/IEC 14662 and ISO/IEC 15944-2, as well as other subsequent parts of the multipart ISO/IEC series of eBusiness standards.

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

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

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Introduction

0.1 Purpose and overview

ISO/IEC 14662[1)] presents the conceptual architecture necessary for carrying out Open-edi. That architecture described the need to have two separate and related views of business activities. The first is the Business Operational View (BOV). The second is the Functional Service View (FSV). ISO/IEC 14662:2010, Figure 1 illustrates the Open-edi environment. For definitions of the terms in Figure 1, see Clause 3.

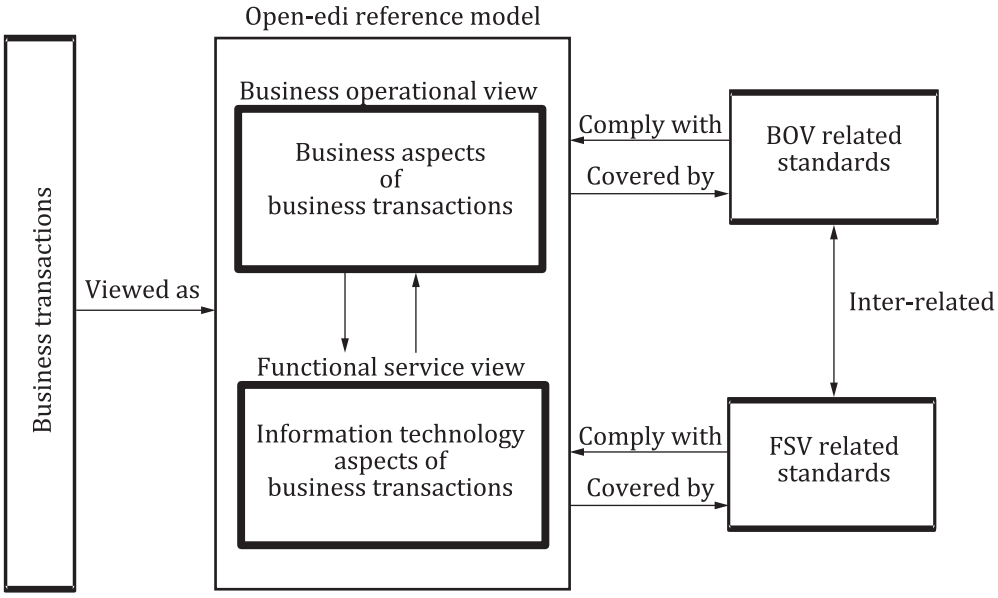

Figure 1 — Open-edi environment

In the BOV, the requirements that the business puts on the exchange of information are described using a modelling technique. ISO/IEC 14662 recognized that there was no single modelling technique identified whilst the International Standard (IS) was in preparation that would satisfy all of the conditions which can be identified as necessary input for the FSV. It was also recognized that business users would need a selection of modelling tools since some tools appear to be better suited to particular types of business specifications and descriptions than others[2)].

To provide for a situation where business users can select from a range of modelling systems, selection criteria identifying the characteristics which any suitable modelling system is required to be able to support have to be defined. These criteria can be used in two ways. One is to be able to select a suitable modelling system. Another is to identify shortcomings in a modelling system currently in use so that the users can provide the extra information themselves if they prefer to use that modelling system.

The BOV is used to capture the business processes from the business perspective, but there are other things that the BOV would not capture because they are part of the operation of the Open-edi architecture itself. One example is that a process needs be able to relate to specific Information Bundles. This relationship has to be precise because any supporting IT system(s) application(s) has to be able to respond to the information structure that it receives as a result of a message from another Open-edi user. Another example is the need

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

2) A Formal Description Technique (FDT) is used to transform, plain text, rule-based BOV requirements into computer-processable IT system level instructions/programming code. For the definition of FDT, see 3.9. ISO/IEC 14662 contains an Annex C (informative) Example of formal description techniques for modeling role behaviour". The three examples of FDTs here are "state transition", "Petri Nets", and "UML".

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to provide for the ability to trigger an action because an event has not occurred (a message has been sent but no response has taken place). Therefore, it is necessary to identify those characteristics which are not expected to be captured in the BOV but are required by IT systems developers in their work on the FSV.

The FSV is used to express the technical methods by which the parts of the business processes used in Open-edi are developed. The FSV has to address the definition, development and lifecycle management of Information Bundles consisting of Semantic Components, together with any rules which are essential to their management and operation.

The FSV is a specification of the way in which the exchange of information is managed. It does not specify the syntax used to encode or represent information that is being exchanged. The selection of a suitable syntax is left to the Electronic Data Interchange (EDI) implementers, just as the selection of the data interchange service on which messages are sent and received is left to networking specialists. Appropriate specialists must ensure that these syntaxes and services are able to satisfy overarching communications requirements such as security services if these are not to be supported through the FSV.

In summary, ISO/IEC 15944 focuses on aspects of "What to do" as opposed to "How to do it", as shown in Figure 2. Existing standards/tools will be used to the extent possible for the "How to." ISO/IEC 15944-2 focuses on identification, registration, referencing and re-use of scenarios, their attributes and components).

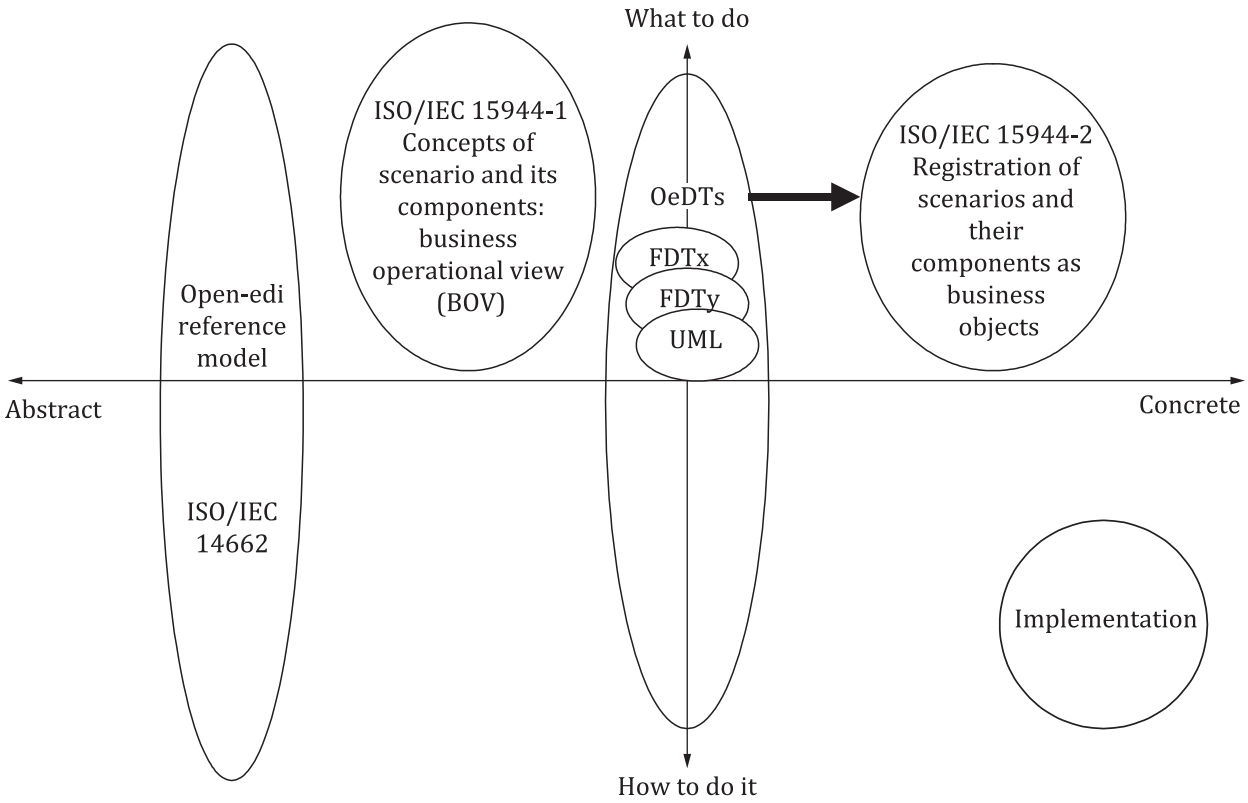

Figure 2 — Aspects of ISO/IEC 15944

0.2 Requirements on the business operational view aspects of Open-edi

The evolution of information and communications technologies (ICT) has created a need and opportunity for different user groups to engage in business relationships using these technologies. This requires automated methods to carry out EDI among Persons.

Standards required for Open-edi cover a large spectrum of areas: commercial aspects, support for national and international laws and regulations, information technology perspectives, telecommunications and interconnections, security services, etc. To these are added public policy requirements of a generic and horizontal nature such as consumer protection and privacy / data protection. ISO/IEC 14662:2010, Annex A describes how the Open-edi Reference Model serves as the basis for coordination of work of different standardization areas and types of standardization for Open-edi.

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In addition, the widespread adoption and use of Internet and World Wide Web- (WWW-) based technologies by Persons as well as individuals has added urgency to the need to identify and specify the key components of a business transaction. For such specifications to be carried out as electronic business transactions supported by automated methods of the functional support services (FSV) requires a standards-based approach for business semantic descriptive techniques in support of the Business Operational View of Open-edi.

The sources of requirements on the Business Operational View (BOV) aspects which need to be integrated and/or taken into account in the development of business descriptive techniques for Open-edi based business transactions include the following:[3)]

a) commercial frameworks and associated requirements;

b) legal frameworks and associated requirements;

c) public policy requirements, particularly those of a generic nature such as consumer protection and privacy protection;

d) sectorial and cross-sectorial requirements;

e) requirements arising from the need to support cultural adaptability requirements. This includes meeting localization and multilingualism requirements, i.e. as may be required to meet requirements of a particular jurisdictional domain or desired for providing a good, service, and/or right in a particular market[6]. Distinguishing between information technology (IT) interfaces and their multiple human interface equivalents is the recommended approach.

This list of sources of requirements is a summary of ISO/IEC 14662:2010, and its Annexes A and B.

Figure 3 provides an integrated view of the business operational requirements (BOV).

3) This list of sources of requirements is a summary of ISO/IEC 14662:2010, Annexes A and B.

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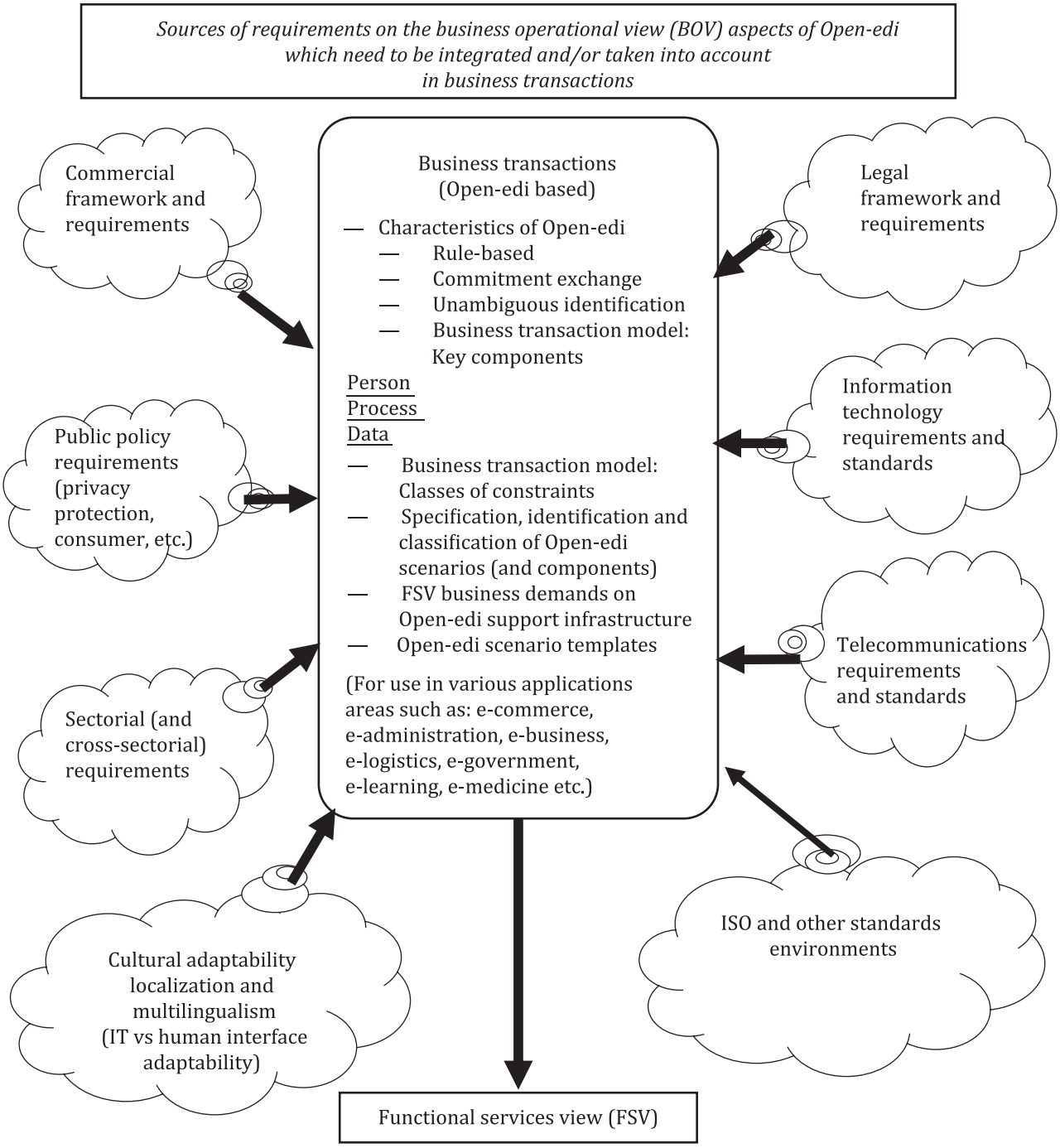

Figure 3 — Integrated View — Business operational requirements focus

0.3 Business operational view (BOV), Open-edi, e-business, etc.

The purpose of this subclause is to provide users with an understanding of the relationship between concepts/terms in this document and concepts/terms such as “electronic commerce”, “electronic administration” and “electronic business”.

Concepts/terms such as “EDI”, and now e-commerce (and its compatriots e-administration, e-business, e-government, e-logistics, e-travel, e-health, etc.), have a high profile among users and suppliers alike, including those working in standardization. These concepts/terms have many different meanings in various

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contexts and perspectives.[4] In addition, marketing people and those seeking to raise investment funds do and will continue to use "e-"words in a variety of ways.

The underlying principles and characteristics of e-commerce and e-administration, e-business, etc. include:

a) being business transaction-based (of both a financial and non-financial nature);

b) using information technology (computers and telecommunications);

c) interchanging electronic data involving establishment of commitments among Persons.

From a commercial, legal and standardization perspective, one can view electronic commerce[5] as the category of **business transactions**, involving two or more **Persons**, enacted through **Electronic Data Interchange (EDI)**, based on a monetary and for-profit basis.

In this document, the concept of "eBusiness", term is used as a high level umbrella concept covering many IT-based applications. The concept of eBusiness, its defintion and associated assigned term was "formally" introduced in ISO/IEC 15944-7 "eBusiness vocabulary"[6]. Specific eBusiness applications include any types of business transactions (including e-commerce, e-logistics, e-government. (See further Figure 3 and its associated text.)

Persons can be individuals, organizations, and/or public administrations.

Consequently, interpretations and use of the concepts/terms "e-commerce", "e-business", "e-administration", etc. which do not require:

— a clearly understood purpose, mutually agreed upon goal(s), explicitness and unambiguity;

— pre-definable set(s) of activities and/or processes, pre-definable and structured data;

— commitments among Persons being established through electronic data interchange;

— computational integrity and related characteristics; and

— the above being specifiable through Formal Description Techniques (FDTs)[7] and executable through information technology systems for use in real world instantiations;

are not considered a priority for this document and are likely to be outside its scope.

These five requirements, noted above, are essential for achieving interoperability from a BOV perspective (just as existing computer and telecommunication standards have as a key objective interoperability from an IT perspective).

0.4 Use of "Person", "person", and "party" in the context of business transactions and commitment exchange

When ISO/IEC 14662 was being developed, in the early 1990s and finally published in 1997, the "Internet" and "WWW" were at an embryonic stage and their impact on private and public sector organizations was not fully understood. The definition of "Business Operational View (BOV)" is given in 3.6.

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4) The ISO/IEC JTC1 Business Team on Electronic Commerce (BT-EC) in its May 1998 Report to JTC1 (N5296) stated (p.9) "*BT-EC recognizes that Electronic Commerce (EC) can be defined in many different ways. But rather than attempting to provide a satisfactory definition, the Team has chosen to take a more heuristic approach to EC and to do so from a global perspective, i.e., world-wide, cross-sectorial, multilingual, various categories of participants (including consumers)*".

5) In ISO/IEC 15944-7, the more generic concept of "eBusiness" was defined as "***business transaction**, involving the making of **commitments**, in a defined collaboration **space**, among **Persons** using their **IT systems**, according to **Open-edi standards**"*. For the complete definition including the Notes, see ISO/IEC 15944-7. In this context, e-commerce, e-government and e-learning are sub-types of eBusiness.

6) The defintion of the concept of "eBusiness" is found in ISO/IEC 15944-7:2017, 3.06

7) The Formal Description Technique (FDT) used in support of this document is based on ISO/IEC 19501 and has been adopted in an EDI context in ISO/IEC 14662:2010 in 3.9.

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The existing and widely-used ISO/IEC 6523 standard definition of “organization” was used in ISO/IEC 14662. The fact that today Open-edi through the Internet and WWW also involves “individuals” has now been taken into account in this document. Further, the 1997 edition of ISO/IEC 14662 did not define “commitment”, nor the discrete properties and behaviours an entity is required to have to be capable of making a “commitment” as well as bridging legal and IT perspectives in the dematerialized world of the Internet.

During the development of this document, the concept of “commitment” was defined. At the same time, it was recognized that in order to be able to make a commitment, the term Open-edi Party was not specific enough to satisfy scenario specifications when the legal aspects of commitment were considered. In many instances, commitments were noted as actually being made between and among machines (automata or computer programs) acting under the direction of those legally capable of making commitments, rather than the individuals in their own capacities. It was also recognized that in some jurisdictional domains, commitments could be made by "artificial" persons such as corporate bodies. Finally, it was recognized that there are occasions where agents act either under the instruction of a principal or as a result of a requirement(s) laid down by a jurisdictional domain, or where an individual is prevented by a relevant jurisdictional domain from being able to make a commitment.

To address these extended requirements, an additional concept of Person was defined. The construct of Person has been defined in such a way that it is capable of having the potential legal and regulatory constraints applied to it.

The user should understand that:

a) the use of Person with a capital “P” represents Person as a defined term in this document, i.e. as the entity within an Open-edi Party that carries the legal responsibility for making a commitment(s);

b) “individual”, “organization” and “public administration” are defined terms representing the three common sub-types of “Person”;

c) the words “person(s)” and/or “party(ies)” are used in their generic contexts independent of roles of “Person” as defined sub-types in this document. A “party to a business transaction” has the properties and behaviours of a “Person” (See further Clause 6, in particular 6.1.3 and 6.2).

0.5 Registration aspects of Open-edi scenarios, scenario attributes and scenario components

This document serves as a rule-based methodology and tool for building and defining scenarios, scenario attributes, and scenario components. It identifies these basic or primitive components of a business transaction, provides guidelines for scoping Open-edi scenarios as well as rules for specification of Open-edi scenarios and their components. It consolidates these through a "Primitive Open-edi Scenario Template". (See Clause 9.) Registration aspects of Open-edi, including requirements, procedures, etc., are covered in ISO/IEC 15944-2, which supports the registration of scenarios, scenario attributes and scenario components as "objects". The objective of ISO/IEC 15944-2 is the identification, registration, referencing and re-usability of common objects in a business transaction. Re-usability of scenarios and scenario components is an achievable objective because existing (global) business transactions, whether conducted on a for-profit or not-for-profit basis, already consist of reusable components unambiguously understood among participating parties. However, such existing "standard" components have not yet been formally specified and registered. ISO/IEC 15944-2 fills this gap.

0.6 Organization and description of the document

This document describes the key concepts required for developing the BOV of a business transaction and scenario. It considers how a scenario may be decomposed into functions and how the different classes of constraints to be applied shall be identified and documented. It provides for methods of modelling processes, work flow and information flow. This document provides methods for identifying primitive or common components so that there is a) a high likelihood of reusability; and b) the ability to locate suitable components in registries. A key purpose of this document is to enable support of legal and regulatory requirements in business transactions.

This document provides two checklists to guide the user through the mechanics of determining the scope of a business transaction and determining the adequacy of the scenario definition as well as those of scenario components. The definitions of scenarios and scenario components are required to be accessible to all

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Persons in order to minimize resources needed to communicate between parties in a clear and unambiguous manner. Designers need therefore ensure that scenarios and components are designed to be interoperable and re-useable. They are also required to be clearly described such that a recipient can interpret them without external information. This document focuses on addressing horizontal, generic issues common to all Open-edi applications and does so from the BOV perspective on business transactions. The diversity of sources of requirements that need to be integrated is illustrated in Figure 3. In addition, this document is also intended to be used by those not that familiar with formal ISO/IEC standards.

To address these requirements and to ensure understandability and thus widespread use of this document, has two normative Annexes, i.e. Annexes A and B, and eight informative Annexes, i.e. Annexes C through J. The focus of Annex A is to provide English and French Human Interface Equivalents (HIEs) for all the terms and definitions found in Clause 3 while that of Annex B is to provide the codes representing presence-type attributes. The purpose of the Annexes C through H is to provide added informative and explanatory text to the normative text of this document. They have been organized to mirror the sequence of the clauses of the normative part. Users who have difficulty in understanding the necessarily short, explicit text of the normative text of this document and its two normative annexes are advised to read the related informative and explanatory text in the annexes.

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Information technology — Business operational view —

Part 1: Operational aspects of open-edi for implementation

1 Scope

This document addresses the fundamental requirements of the commercial and legal frameworks and their environments on business transactions. It also integrates the requirements of the information technology and telecommunications environments.

In addition to the existing strategic directions of "portability" and "interoperability", the added strategic direction of ISO/IEC JTC 1 of "cultural adaptability" is supported in this document. It also supports requirements arising from the public policy/consumer environment, cross-sectoral requirements and the need to address horizontal issues. It integrates these different sets of requirements. (See Figure 3)

This document allows constraints which include legal requirements, commercial and/or international trade and contract terms, public policy (e.g. privacy/data protection, product or service labelling, consumer protection), laws and regulations to be defined and clearly integrated into Open-edi through the BOV. This means that terms and definitions in this document serve as a common bridge between these different sets of business operational requirements, allowing the integration of code sets and rules defining these requirements to be integrated into business processes electronically.

This document contains a methodology and tool for specifying common business practices as part of common business transactions in the form of scenarios, scenario attributes, roles, Information Bundles and Semantic Components. It achieves this by: 1) developing standard computer processable specifications of common business rules and practices as scenarios and scenario components; and thus, 2) maximizing the re-use of these components in business transactions.

2 Normative references

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

ISO/IEC 14662:2010, *Information technology — Open-edi reference model*

3 Terms and definitions

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

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

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

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

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3.1
agent
Person (3.47) acting for another *Person* in a clearly specified capacity in the context of a *business transaction* (3.7)

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

3.2
Application Program Interface
API
boundary across which application software uses facilities of programming languages to invoke services

Note 1 to entry: These facilities may include procedures or operations, shared data objects and resolution of identifiers.

Note 2 to entry: A wide range of services may be required to support applications. Different methods may be appropriate for documenting API specifications for different types of services.

Note 3 to entry: The information flows across the boundary are defined by the syntax and the semantics of a particular programming language, such that the user of that language may access the services provided by the platform on the other side of the boundary. This implies the specification of the mapping of the functions being made available by the application platform into the syntax and semantics of the programming language.

[SOURCE: ISO/IEC 14662:2010, 3.1]

3.3
authentication
provision of assurance of the claimed identity of an *entity* (3.20)

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

3.4
authenticity
property that ensures that the identity of a subject or resource is the one claimed

Note 1 to entry: Authenticity applies to entities such as users, processes, systems and information.

3.5
business
series of *processes* (3.53), each having a clearly understood purpose, involving more than one *Person* (3.47), realized through the exchange of *recorded information* (3.56) and directed towards some mutually agreed upon goal, extending over a period of time

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

3.6
Business Operational View
BOV
perspective of *business transactions* (3.7) limited to those aspects regarding the making of *business* (3.5) decisions and *commitments* (3.9) among *Persons* (3.47), which are needed for the description of a *business transaction*

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

3.7
business transaction
predefined set of activities and/or *processes* (3.53) of *Persons* (3.47) which is initiated by a *Person* to accomplish an explicitly shared *business* (3.5) goal and terminated upon recognition of one of the agreed conclusions by all the involved *Persons* although some of the recognition may be implicit

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

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3.8
buyer
Person (3.47) 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

3.9
commitment
making or accepting of a right, obligation, liability or responsibility by a *Person* (3.47) that is capable of enforcement in the jurisdictional domain in which the commitment is made

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

3.10
consensus
<standardization perspective>general agreement, characterized by the absence of sustained opposition to substantial issues by any important part of the concerned interests and by a *process* (3.53) that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments

Note 1 to entry: Consensus need not imply unanimity.

3.11
constraint
rule, explicitly stated, that prescribes, limits, governs or specifies any aspect of a *business transaction* (3.7)

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

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

Note 3 to entry: A constraint may be agreed to among parties (condition of contract) and is therefore considered an internal constraint. Or a constraint may be imposed on parties, (e.g. laws, regulations, etc.), and is therefore considered an external constraint.

3.12
consumer
buyer (3.8) who is an *individual* (3.28) to whom consumer protection requirements are applied as a set of *external constraints* (3.23) on a *business transaction* (3.7)

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

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

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

3.13
data
reinterpretable representation of *information* (3.29) in a formalized manner suitable for communication, interpretation, or processing

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

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

3.14
data (in a business transaction)
representations of *recorded information* (3.56) that are being prepared or have been prepared in a form suitable for use in a computer system

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3.15
data element
unit of *data* (3.13) for which the definition, *identification* (3.26), representation and permissible values are specified by means of a set of attributes

[SOURCE: ISO/IEC 11179-1:2023, 3.3.4]

3.16
data element
<organization of data>unit of *data* (3.13) that is considered in a certain context to be indivisible

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

[SOURCE: ISO/IEC 11179-1:2023, 3.3.4]

3.17
Decision Making Application
DMA
model of that part of an *Open-edi system* (3.42) that makes decisions corresponding to the *role(s)* (3.60) that the *Open-edi Party (OeP)* (3.39) plays, as well as originating, receiving and managing *data* (3.13) values contained in instantiated*Information Bundles (IBs)* (3.30), which is not required to be visible to the other *Open-edi Party(ies) (OeP)*

[SOURCE: ISO/IEC 14662:2010, 3.7]

3.18
distinguishing identifier
data (3.13) that unambiguously distinguishes an *entity* (3.20) in the *authentication* (3.3) *process* (3.53)

[SOURCE: ISO/IEC 10181-2:1996, 3.11]

3.19
Electronic Data Interchange
EDI
automated exchange of any predefined and structured *data* (3.13) for *business* (3.5) purposes among information systems of two or more *Persons* (3.47)

Note 1 to entry: This definition includes all categories of electronic business transactions.

[SOURCE: ISO/IEC 14662:2010, 3.8]

3.20
entity
any concrete or abstract thing that exists, did exist, or might exist, including associations among these things

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

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

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

3.21
entity authentication
corroboration that an *entity* (3.20) is the one claimed

[SOURCE: ISO/IEC 9798-1:2010, 3.14]

3.22
(entity) identification
method of using one or more attributes whose attribute values uniquely identify each occurrence of a specified *entity* (3.20)

[SOURCE: ISO/IEC 2382:2015, 2121444]

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3.23
external constraint
constraint (3.11) which takes precedence over *internal constraints* (3.33) in a *business transaction* (3.7), i.e. is external to those agreed upon by the parties to a *business transaction*

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

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

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

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

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

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

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

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

EXAMPLE 4 There may be a legal or audit requirement to maintain the complete set of recorded information pertaining to a business transaction, i.e. as the Information Bundles exchanged, as a record.

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

3.24
Formal Description Technique
FDT
specification method based on a description language using rigorous and *unambiguous* (3.66) rules both with respect to developing expressions in the language (formal syntax) and interpreting the meaning of these expressions (formal semantics)

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

3.25
Functional Service View
FSV
perspective of *business transactions* (3.7) limited to those information technology interoperability aspects of *IT Systems* (3.32) needed to support the execution of *Open-edi transactions* (3.43)

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

3.26
identification
rule-based *process* (3.53), explicitly stated, involving the use of one or more attributes, i.e. *data element(s)* (3.15), whose content value (or combination of values) are used to identify uniquely the occurrence or existence of a specified *entity* (3.20)

3.27
identifier
<in business transaction> *unambiguous* (3.66), unique and a linguistically neutral value, resulting from the application of a rule-based *identification* (3.26) *process* (3.53)

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

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

3.28
individual
Person (3.47) who is a human being, i.e. a natural person, who acts as a distinct indivisible *entity* (3.20) or is considered as such

3.29
information
<information processing>knowledge concerning *objects* (3.36), such as facts, events, things, *processes* (3.53), or ideas, including concepts, that within a certain context has a particular meaning

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

3.30
Information Bundle
IB
formal description of the semantics of the *recorded information* (3.56) to be exchanged by *Open-edi Parties* (3.39) playing *roles* (3.60) in an *Open-edi scenario* (3.40)

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

3.31
Information Processing Domain
IPD
Information Technology System (3.32) which includes at least either a *Decision Making Application (DMA)* (3.17) and/or one of the components of an Open-edi Support Infrastructure, and acts/executes on behalf of an *Open-edi Party* (3.39) (either directly or under a delegated authority)

[SOURCE: ISO/IEC 14662:2010, 3.12]

3.32
Information Technology System
IT System
set of one or more computers, associated software, peripherals, terminals, human operations, physical processes, and information transfer means that form an autonomous whole, capable of performing information processing and/or information transfer

[SOURCE: ISO/IEC 14662:2010, 3.13]

3.33
internal constraint
constraint (3.11) which forms part of the *commitment(s)* (3.9) mutually agreed to among the parties to a *business transaction* (3.7)

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

3.34
medium
physical material which serves as a functional unit, in or on which information or *data* (3.13) is normally recorded, in which information or *data* can be retained and carried, from which information or *data* can be retrieved, and which is non-volatile in nature

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

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

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

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

3.35
name
designation of an *object* (3.36) by a linguistic expression

3.36
object
anything perceivable or conceivable

Note 1 to entry: Objects may also be material, (e.g. engine, a sheet of paper, a diamond), or immaterial, (e.g. conversion ration, a project play), or imagined, (e.g. a unicorn).

[SOURCE: ISO 1087:2019, 3.1.1]

3.37
Open-edi
Electronic Data Interchange (EDI) (3.19) among multiple autonomous *Persons* (3.47) to accomplish an explicit shared *business* (3.5) goal according to *Open-edi standards* (3.41)

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

3.38
Open-edi Description Technique
OeDT
specification method such as a *Formal Description Technique* (3.24), another methodology having the characteristics of a *Formal Description Technique*, or a combination of such techniques as needed to formally specify *BOV* (3.6) concepts, in a computer processable form

[SOURCE: ISO/IEC 14662:2010, 3.16]

3.39
Open-edi Party
OeP
Person (3.47) that participates in *Open-edi* (3.37)

Note 1 to entry: 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 modeled as a Person as playing a role in Open-edi scenarios.

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

3.40
Open-edi scenario
OeS
formal specification of a class of *business transactions* (3.7) having the same *business* (3.5) goal

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

3.41
Open-edi standard
standard (3.64) that complies with the *Open-edi* (3.37) Reference Model

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

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3.42
Open-edi system
information technology system (IT System) (3.32) which enables an *Open-edi Party* (3.39) to participate in *Open-edi transactions* (3.43)

[SOURCE: ISO/IEC 14662:2010, 3.22]

3.43
Open-edi transaction
business transaction (3.7) that is in compliance with an *Open-edi scenario* (3.40)

[SOURCE: ISO/IEC 14662:2010, 3.23]

3.44
organization
unique framework of authority within which a person or persons act, or are designated to act, towards some purpose

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

EXAMPLE 1 An organization incorporated under law.

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

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

[SOURCE: ISO/IEC 6523-1:2023, 3.1]

3.45
organization part
any department, service or other *entity* (3.20) within an *organization* (3.44), which needs to be identified for information interchange

[SOURCE: ISO/IEC 6523-1:2023, 3.2]

3.46
organization Person
organization part (3.45) which has the properties of a *Person* (3.47) and thus is able to make *commitments* (3.9) on behalf of that *organization* (3.44)

Note 1 to entry: An organization can have one or more organization Persons.

Note 2 to entry: An organization Person is deemed to represent and act on behalf of the organization and to do so in a specified capacity.

Note 3 to entry: An organization Person can be a "natural person" such as an employee or officer of the organization.

Note 4 to entry: An organization Person can be a legal person, i.e. another organization.

3.47
Person
entity (3.20), i.e. a natural or legal person, recognized by law as having legal rights and duties, able to make *commitment(s)* (3.9), assume and fulfil resulting obligation(s), and able to be held accountable for its action(s)

Note 1 to entry: Synonyms for "legal person" include "artificial person", "body corporate", etc., depending on the terminology used in competent jurisdictional domains.

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

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

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

3.48
persona
set of *data elements* (3.15) and their values by which a *Person* (3.47) wishes to be known and thus identified in a *business transaction* (3.7)

3.49
persona Registration Schema
pRS
formal definition of the *data* (3.13) fields contained in the specification of a *persona* (3.48) of a *Person* (3.47) and the allowable contents of those fields, including the rules for the assignment of *identifiers* (3.27)

Note 1 to entry: This may also be referred to as a persona profile of a Person.

3.50
Person authentication
provision of the assurance of a *recognized Person identity (rPi)* (3.55) (sufficient for the purpose of the *business transaction* (3.7) by corroboration

3.51
Person identity
Pi
combination of *persona* (3.48) information and *identifier* (3.27) used by a *Person* (3.47) in a *business transaction* (3.7)

3.52
Person signature
signature, i.e. a *name* (3.35) representation, distinguishing mark or usual mark, which is created by and pertains to a *Person* (3.47)

3.53
process
series of actions or events taking place in a defined manner leading to the accomplishment of an expected result

3.54
public administration
entity (3.20), i.e. a *Person* (3.47), which is an *organization* (3.44) and has the added attribute of being authorized to act on behalf of a *regulator* (3.59)

3.55
recognized Person identity
rPi
Person identity (Pi) (3.51) established to the extent necessary for a specific purpose in a *business transaction* (3.7)

3.56
recorded information
any *information* (3.29) that is recorded on or in a *medium* (3.34) irrespective of form, recording *medium* (3.34) or technology used, and in a manner allowing for storage and retrieval

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

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

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

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3.57
Registration Authority
RA
Person (3.47) responsible for the maintenance of one or more *Registration Schemas (RS)* (3.58) including the assignment of a unique *identifier* (3.27) for each recognized *entity* (3.20) in a *Registration Schema (RS)*

3.58
Registration Schema
RS
formal definition of a set of rules governing the *data* (3.13) fields for the description of an *entity* (3.20) and the allowable contents of those fields, including the rules for the assignment of *identifiers* (3.27)

3.59
regulator
Person (3.47) who has authority to prescribe *external constraints* (3.23) which serve as principles, policies or rules governing or prescribing the behaviour of *Persons* involved in a *business transaction* (3.7) as well as the provisioning of goods, services, and/or rights interchanged

3.60
role
specification which models an external intended behaviour (as allowed within a scenario) of an *Open-edi Party* (3.39)

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

3.61
scenario attribute
formal specification of *information* (3.29), relevant to an *Open-edi scenario* (3.40) as a whole, which is neither specific to *roles* (3.60) nor to *Information Bundles* (3.30)

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

3.62
seller
Person (3.47) 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

3.63
Semantic Component
SC
unit of *recorded information* (3.56) unambiguously defined in the context of the *business* (3.5) goal of the *business transaction* (3.7)

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

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

3.64
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* (3.53) and services are fit for their purpose

Note 1 to entry: This is the generic definition of “standard” of the ISO and IEC as found in ISO/IEC Guide 2:2004, 1.7.

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3.65
third party
Person (3.47) besides the two primarily concerned in a *business transaction* (3.7) who is *agent* (3.1) of neither and who fulfils a specified *role* (3.60) or function as mutually agreed to by the two primary *Persons* or as a result of *external constraints* (3.23)

Note 1 to entry: It is understood that more than two Persons can at times be primary parties in a business transaction.

3.66
unambiguous
level of certainty and explicitness required in the completeness of the semantics of the *recorded information* (3.56) interchanged that is appropriate to the goal of a *business transaction* (3.7)

3.67
vendor
seller (3.62) on whom consumer protection requirements are applied as a set of *external constraints* (3.23) on a *business transaction* (3.7)

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

Note 2 to entry: It is recognized that external constraints on a seller of the nature of consumer protection may be peculiar to a specified jurisdictional domain.

3.68
privacy
right to be left alone, free from intrusion or interruption, privacy is an umbrella term, encompassing elements such as physical privacy, communications privacy, and information privacy

Note 1 to entry: Privacy is linked to other fundamental human rights such as freedom and personal autonomy.

3.69
personal information
any *information* (3.29) 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.

Note 1 to entry: In some jurisdictional domains, privacy/data protection legislation can apply to electronically, i.e. computer system-based, recorded information only.

4 Abbreviated terms

API	Application Program Interface
BOV	Business Operational View
BTM	Business Transaction Model
CD	Coded Domain
COPOLCO	ISO's Commettee on Consumer Policy
DMA	Decision Making Application
EDI	Electronic Data Interchange
FDT	Formal Description Technique
FSV	Functional Service View

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HIE	Human Interface Equivalent
IB	Information Bundle
ICT	Information communications technology
IPD	Information Processing Domain
IT System	Information Technology System
IS	International Standard
OeDT	Open-edi Description Technique
OeP	Open-edi Party
OeS	Open-edi Scenario
OeSE	Open-edi Support Entity
OeSI	Open-edi Support Infrastructure
OeUD	Open-edi User Data
Pi	Person identity
pRS	persona Registration Schema
QoS	Quality of Service
RA	Registration Authority
rPi	recognized Person identity
RS	Registration Schema
SC	Semantic Component

5 Characteristics of Open-edi

5.1 General

Open-edi describes flows of information using Information Bundles which cause pre-defined changes in the states of the parties to the exchange. Parties using Open-edi make the commitment that they will adhere to the predefined rules associated with the registered associated scenario attributes, roles and Information Bundles (including registered Semantic Components). This is necessary to support the exchanges of commitments applicable to the parties involved in the business transaction.

This clause is based on ISO/IEC 14662. As such, all Open-edi implementations shall meet the requirements specified in ISO/IEC 14662.

The characteristics by which Open-edi is recognized and defined are:

a) actions based on 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;

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f) multiple simultaneous transactions can be supported.

Each of these characteristics is now described in more detail.

5.2 Actions based on following clear, predefined rules

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 both the:

— 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 need also have consistent generic procedural views on their interaction. Therefore, rule sets have to be agreed to in advance and captured in Open-edi scenarios. This is a major component of the agreement required among parties.

5.3 Commitment of the parties involved

Open-edi is a class of electronic information flows which involves (pre)defined types and states of commitments of the parties concerned. These commitments involve tasks or functions to be carried out, obligations to be entered into, etc. In Open-edi, all commitments are required to be stated clearly and unambiguously and understood by all parties involved. Commitments are of several types and exist at several levels. The obligations arising from commitments can be fulfilled either directly by the parties, or through agents acting on their behalf.

5.4 Communications among parties are automated

Open-edi activities take place in automated modes among IT systems of the participating parties. The actual exchange of information and compliance with rule sets agreed to for the Open-edi exchange must be implemented by using an automaton or computer program. As a result, the use of Open-edi means that only requirements for interchange of information among information systems and applications are considered.

Requirements on the interchange of information between humans and terminals or programs are not addressed. Any human intervention is considered to be a part of the Decision Making Application (DMA). That is not to say that computer applications surrounding an Open-edi system could not provide for human intervention, but these would not form part of the Open-edi scenario itself. It is always possible for one or more Open-edi Parties to carry out steps or actions manually and not through automata. Where manual steps or actions are contemplated these should be recorded as part of the business transaction definition for the party concerned.

5.5 Parties control and maintain their states

An Open-edi Party is required to always have, and make available to other parties, a state description. As perceived by another party, a state description includes only the knowledge necessary for a particular Open-edi activity to take place. A state description is the characteristic of a party at a given point in time which allows the prediction of its external behaviour (or possible ranges of behaviour). A state description is defined in terms of those characteristics which are required to be available to other parties for the purpose of enabling agreed upon Open-edi scenarios. States are required to therefore be stable, sustainable and persistent. When a party needs to change its state, it is required to observe the rules by which state changes are allowed. Changes of the state of one party should be available to all other parties for whom this change has an importance.

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5.6 Parties act autonomously

Open-edi is intended to preserve the autonomy of parties as they engage in business transactions. The characteristic of autonomy is crucial from several perspectives, including the ability to commit from a business/operational perspective, technical, legal, audit, etc. Just as commitment can exist at several levels, so can autonomy exist at several levels.

The characteristic of autonomy provides a controlled means by which the information systems of parties can retain the individuality of the manner in which they carry out their internal business processes whilst providing a consistent external behaviour conforming to agreed business processes.

5.7 Multiple simultaneous transactions can be supported

Open-edi systems can enable an Open-edi Party to participate in multiple distinct Open-edi transactions simultaneously.

Characteristics 5.2 through 5.7 serve as criteria which are required to be satisfied in order for electronic flows of information or data to be considered Open-edi. These criteria apply irrespective of the area of application for Open-edi.

6 Components of a business transaction

6.1 General

6.1.1 Overview

The BOV is used to capture and define the integration between business operational requirements and requirements that arise from:

a) existing commercial frameworks;

b) existing legal frameworks;

c) those of a public policy/consumer requirements nature;

d) sectoral (and cross-sectoral) requirements;

e) localization and multilingualism; and,

f) information technology and telecommunication requirements and standards.

The BOV is able to provide this capability because issues such as contents of contract and applicable law can be captured during the business analysis phase. It cannot be captured at a later stage in scenario definition, i.e. that of planning, identification, negotiation, actualization, post-actualization phases of the process component of the BTM. (See 6.3)

Capturing these additional requirements is essential to ensuring that the parties have, or are able to obtain through the use of the Open-edi scenario, a clear understanding of the parameters of any commitment being made. In order to understand this chapter, readers are advised to familiarize themselves with the definitions of the following terms: “Business Operational View (BOV)”, “Functional Services View (FSV)”, “business”, “business transaction”, “Open-edi”, and “Electronic Data Interchange (EDI)”. See further Clause 3 or Annex A which also includes the French language equivalents. For the Chinese and Russian language equivalents, see the consolidated “eBusiness vocabulary” in ISO/IEC 15944-7.

Fundamental defined concepts include:

a) the introduction of Person as the entity within an Open-edi Party that carries the ability, competency and legal responsibility for making a commitment;

b) the need to have rule-based processes which together deliver the commonly agreed business objectives;

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c) data exchange, which is the transfer of Information Bundles (and their associated Semantic Components) between and among parties;

d) constraints that have to be applied to the scenario as a result of the nature of the Persons, the role they are playing or the scenario itself. It is essential, when considering scenarios, to determine clearly the constraints that apply to the scenario, either preconditions on entry to any point in a scenario, or post-conditions determined by the scenario component(s) and role combination that have just been played.

The primary purpose of this Clause is two-fold, namely:

a) to capture key aspects of a business transaction in order to serve as a common basis and understanding for users of this document representing these different sources of business operational requirements; and

b) to serve as source for the “WHATs” of business requirements as “rules for scoping Open-edi scenarios” as specified in 7.2, and as part of the context and rules for specification of Open-edi scenarios and their components for Clause 8. Further, the focus of this BOV standard in being rule-based is on the "WHATs" and not on the "HOWs", (e.g. the specification of scenarios and scenario components remain the same but there will be various ways to implement them without compromising interoperability).

The introductory subclauses of this clause cover aspects which apply to business transactions as a whole and introduce the Business Transaction Model (BTM) in terms of its three components and two classes of constraints; “internal” and “external”. Subclauses 6.2, 6.3, and 6.4 focus on the three component parts of the Business Transaction Model. Subclause 6.5 provides business demands on the Open-edi Support Infrastructure. Identification and Classification of Open-edi scenarios, based on the concepts of this clause, are presented in ISO/IEC TR 15944-6.

6.1.2 Standard based on rules and guidelines

This document is intended to be used within and outside of the ISO and IEC by diverse sets of users having different perspectives and needs. (See Figure 3).

See 3.64 for ISO's definition of a "standard. One can interpret "agreement" in a variety of ways. The 8th edition of the ISO/IEC Guide 2:2004, 1.7 uses the term "consensus" which need not imply unanimity. An earlier version of Guide 2 also included the phrase “but rather “absence of sustained opposition to substantial issues…”. See further, 3.10.

This document focuses on "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".

As noted in 5.1, Open-edi is based on rules which are predefined and mutually agreed to by the parties concerned. They are precise criteria and agreed upon requirements of business transactions representing common business operational practices and functional requirements. These rules also serve as a common set of understanding bridging the varied perspectives of the commercial framework, the legal framework, the information technology framework, standardizers, consumers, etc.

The working principle is that of "coordinated autonomy", i.e. all parties are autonomous. Therefore, the extent to which they cooperate, agree on common needs, business rules constraints, practices, etc., and reach agreement on the same in form of precise rules, terms and definitions, etc., is a key influence on the creation of necessary standards as well as common scenarios, scenario attributes and scenario components. In this document, the common rules are sequentially enumerated and presented in bold font. Where guidelines are provided for a rule they are numbered sequentially after that rule and are shown in an italic font. For example, “Guideline 5G2” equals the second guideline under Rule 5. Choice of words in the rules, the guidelines and the terms and definitions are governed by maximizing the ability to map, on the one hand, to commercial and legal frameworks of the day-to-day world of business, and on the other, to information and technology frameworks, service providers, and standardizers, etc.

For the human interface equivalents (HIEs) of terms used in the rules and guidelines, Annex A shall apply.

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6.1.3 Business transaction: commitment exchange added to information exchange

The Business Operational View (BOV) states the need for information exchange and commitment exchange as essential for business transactions among autonomous parties using Open-edi. Most ISO/IEC JTC1 standards focus on information exchange aspects only. This document focuses on integrating commitment exchange with information exchange in the dematerialized world of Open-edi.

Rule 1:

Business transactions require both information exchange and commitment exchange.

A key property of a business transaction is that it involves commitment exchange among Persons in addition to information exchange among their IT systems. To date, the primary focus of FSV-related standards, i.e. those in the areas of information technology, telecommunication services, security services, etc., is on information exchanges among technical components as objects, i.e. as senders and receivers via locations specified as an address.

In this context, a "Person" is seen simply as an entity which may or may not be associated with the technical components which are considered to be the objects that send or receive data, i.e. the focus of existing telecommunication and information technology standards, as information exchange only with technical components as the "end points" is illustrated in Figure 4.[8)]

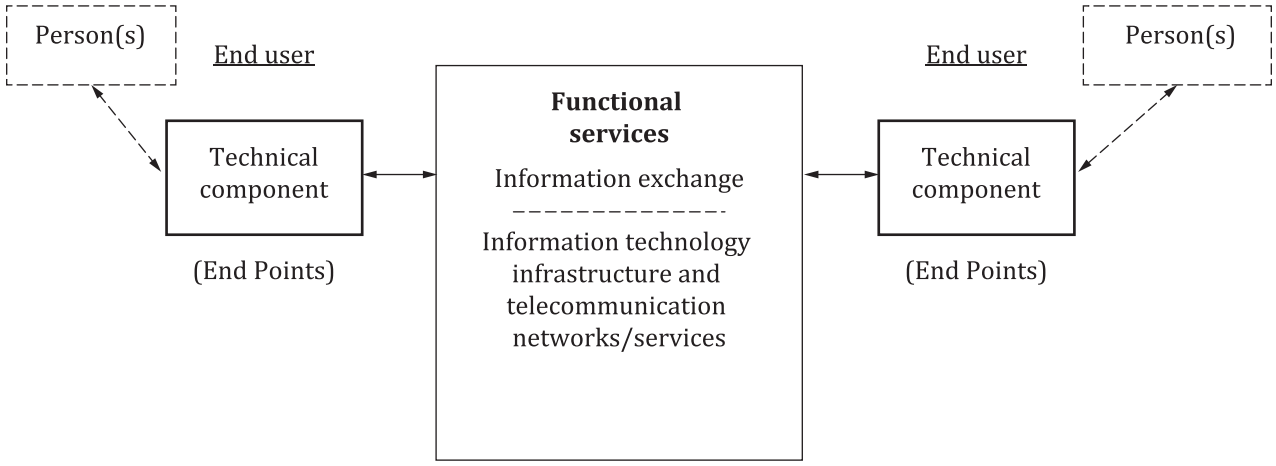

Figure 4 — Illustration of technical components as end users of information exchange(s) in IT Standards — FSV perspective

Guideline 1G1:

The term "Person" is used to represent the generic use of the term "party" plus the ability of a party to be able to make commitments with respect to a business transaction.

From the perspective of the requirements of commercial and legal frameworks, information exchange is only one element in a business transaction, for which the end points are "Persons" (natural or legal) and not technical components. The two key attributes of a business transaction that differentiate it from (general) information exchange are that business transactions involve:

a) commitment exchange; and

b) "Persons" who are the end users, (the "alpha" and "omega") in their roles as buyers and sellers of goods, services and/or rights.

8) IT and telecommunication standards and their implementation ensure efficient routing and networking among addressees, locating them as end points for a given length of time (or session) via terrestrial and/or wireless networks. The end points referred to in these standards as "user", "end user", or "technical components" can be a terminal device (including hand-held) a token, (e.g., a magnetic stripe card, IC card, etc.), an information system, an application, a directory service, etc. Within the Open System Interconnect (OSI) approach, different layers have their own addressing scheme(s) designed to support the functional services at that level.

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The term commonly used in the context of business transactions is that of “party”. In this document, the term “Person” is used to specify a party which has the ability to make commitments, being held responsible for, having rights and obligations, etc. in the context of a business transactions. Various combinations of information technologies may be used in the establishment of commitments, formation of rights and obligations, and other commitment exchange. This is illustrated in Figure 5.

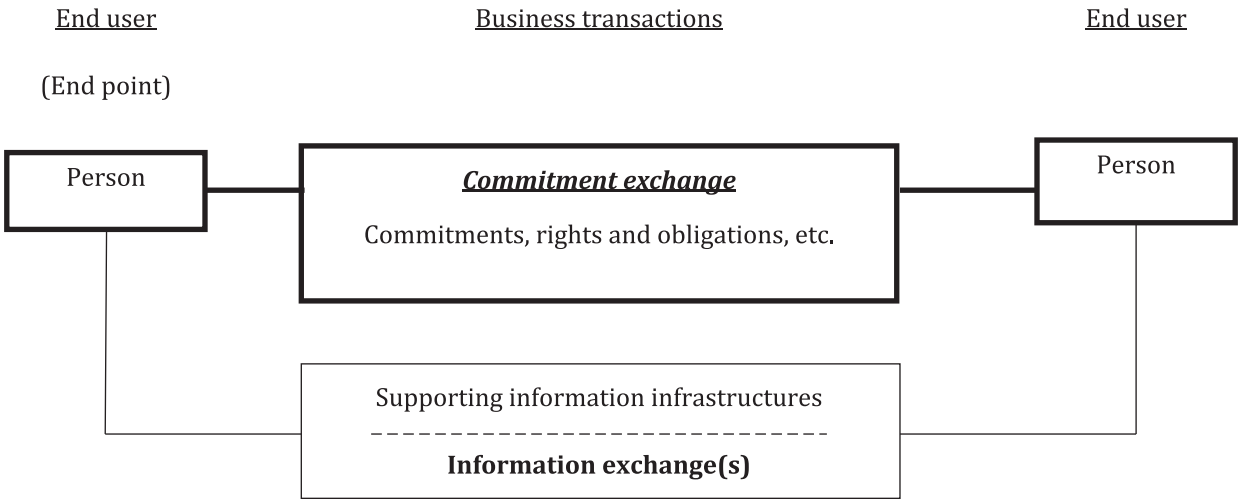

Figure 5 — Illustration of Persons as end users in commitment exchange in business transactions based on existing commercial and legal frameworks — BOV perspective

In Open-edi, a Person:

a) is the only type of entity able to make commitments,

b) is represented in dematerialized form, and,

c) engages in a business transaction via electronic data interchange.[9)]

It is important to note that “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. It is also noted that synonyms for "legal person" include "artificial person", "body corporate", etc., depending on the terminology used in competent jurisdictional domains.

Minimum and common external constraints applicable to a business transaction often require one to differentiate among three common sub-types of Person, namely individual, organization, and public administration.[10)]

A "Person" is defined in 3.47. This definition has been drafted with assistance from lawyers (public and private sector) with international expertise in both common and civil law to cover both the present material world and the emerging dematerialized world. It is independent of any particular information technology, i.e. is medium neutral. See further 6.2 and Annex E.

9) The Open-edi Reference Model ISO/IEC 14662 defines Open-edi as "*electronic data interchange among multiple autonomous organizations to accomplish an explicit shared business goal according to Open-edi standards*". ISO/IEC 6523 defines "organization" as "*a unique framework of authority within which a person or persons act, or are designed to act, towards some purpose".* The focus and scope of the ISO/IEC 6523 standard is that of "information exchange" only. It is used extensively world-wide and in many sectors including information technologies, telecommunications (including telephony and the Internet), banking, transport, health, education, security services, etc. ISO/IEC 6523, however, does not define "person" nor deal with commitment exchange.

10) The definition of “Person”, with a capital “P”, has been drafted with assistance from lawyers (public and private sector) with international expertise in both common and civil law to cover both the present material world and the emerging dematerialized world. It is independent of any particular information technology, i.e., is medium neutral. This is clearly stated in “Rules governing the Person component”, *see* further 6.2, and in more detail in “Business Transaction Model: Person component” in Annex E.

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There are three broad categories or sub-types of Persons as players in Open-edi; the Person as "individual", the Person as "organization", and the Person as "public administration". These three sub-types of Person reflect external constraints which often need to be taken into account. See further 6.2 for the rules governing Person components.

Consequently, business transactions executed through Open-edi can support the following business relationships reflecting these three sub-types of Person.

a) individual <-> individual

b) individual <-> organization

c) individual <-> public administration

d) organization <-> organization

e) organization <-> public administration

f) public administration <-> public administration

The term Person therefore represents these business relationships with a specific focus on including the legal and commercial requirements of "commitment exchange" in the business operational view of a business transaction.[11)]

Rule 2:

A Person is the only entity able to make commitments in a business transaction.

A Person is autonomous. However, autonomy is shared through the acceptance of common rules, legal environments, business conventions etc., i.e. coordinated autonomy. These are stated as constraints of a scenario and are accepted limitations of the autonomy of the Person and are specified as commitments among the Persons who are parties to a business transaction.

“Commitment” is defined in 3.9 and only a “Person” is able or capable to be able to make a “commitment” In addition, it is recognized that the enforcement of a commitment is governed by the applicable rules in the jurisdictional domain in which the commitment is made.

Rule 3: In (electronic) business transactions, all commitments shall be stated explicitly and unambiguously and be understood by all Persons involved in a business transaction.

The use of IT requires the capture, through formal description techniques (FDTs), of the commitments made and applicable rules and constraints.

The use of information technology and especially Open-edi, requires a higher order of requirements for rule-based, unambiguity, explicitness, etc., than is the case in present day business transactions (whether on a for-profit or not for profit basis). In many cases there will be a challenge transforming commonly known and used business practices into explicitly stated scenarios, scenario attributes and scenario components.

It needs to be noted that meeting the criteria of “explicit” and “unambiguous” in Rule 3 does not preclude the ability to reference and invoke common business processes and default sets of values for terms and conditions in an actual business transaction. On the contrary, the Open-edi Reference Model and this Business Operational View standard is based on the assumption that most real world business transactions are combinations of previously defined common, re-useable components (scenarios and scenario components).

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11) At the time that the Open-edi Reference Model was first developed in the 1990s, individuals, on the whole, participated in EDI-based business transactions with each other via organizations. The rapid world-wide development and use of the Internet in support of business transactions has led to individuals engaging in business transactions directly with organizations, i.e., without organizations acting as agents on their behalf, as well as individuals engaging in business transactions directly with each other, i.e., individual <-> individual. At the same time, the Internet has made possible the conduct of business transactions not only among public administrations with other organizations but also of public administrations with individuals. (For further discussion on the entity "Person(s)" and its sub-components, see further 6.2 "*Rules Governing the Person component*".) 6.2.)

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In Open-edi, Person, the only entity able to make commitments, is represented in dematerialized form and engages in business transactions via electronic data interchange. Figure 6 provides an integrated view of the BOV and FSV perspectives of Persons as dematerialized entities in a business transaction.

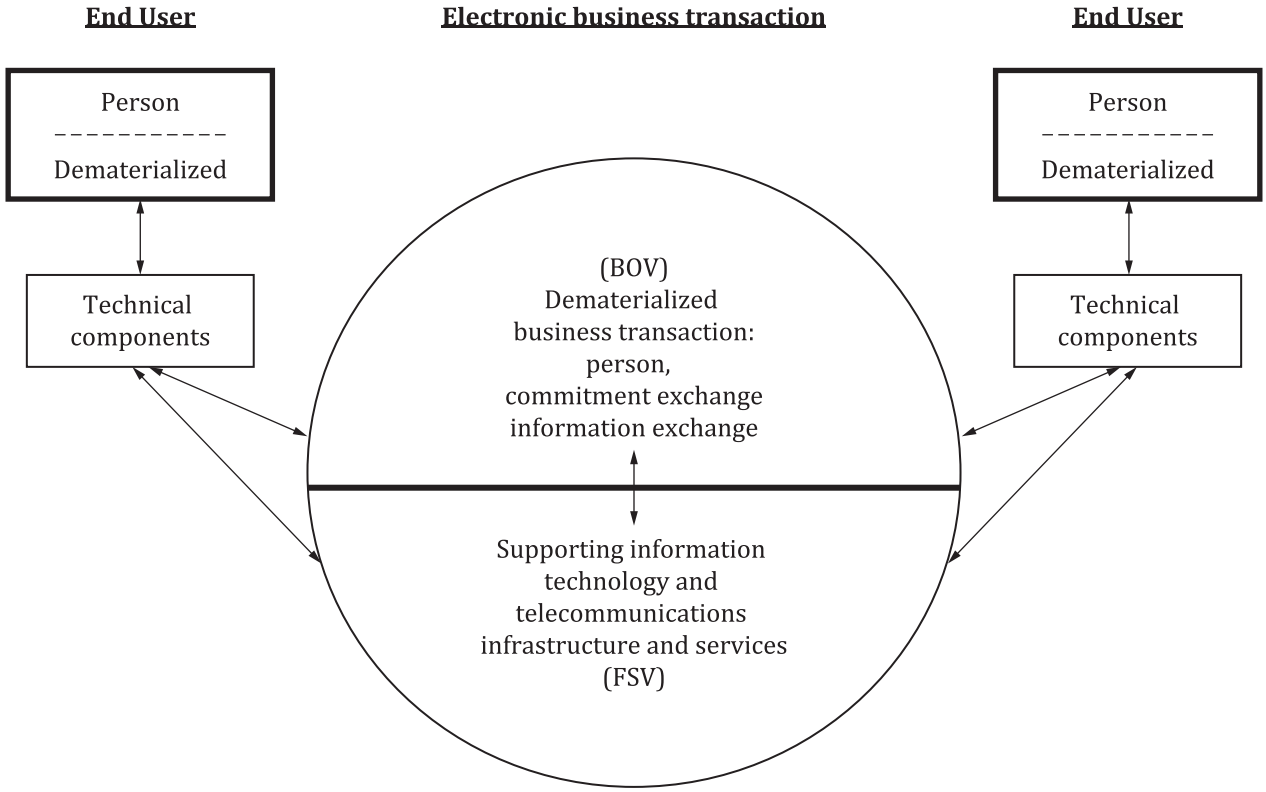

Figure 6 — Integrated View — Commercial/legal and IT perspectives of Persons as "end users" in an electronic business transaction through technical components – incorporating BOV and FSV perspectives

6.1.4 Business transaction: unambiguous identification of entities

It is essential to have unambiguous identification of all the entities that comprise a business transaction (Person, objects, events, processes, scenarios, scenario components, and constraints). Annex C "Unambiguous identification of entities in a business transaction". Annex C provides the informative and explanatory text for the rules and definitions in 6.1.4. This document provides methods and tools for the specification and identification of Open-edi scenarios and components as re-useable objects for business transactions. ("Unambiguous" is an issue in business transactions because states of ambiguity and uncertainty are not desired from legal, commercial, consumer and information technology perspectives.) Issues of unambiguousness apply to all aspects of a business transaction and even more so to those which are EDI-based. Further, the objectives of interoperability and re-usability of Open-edi scenarios and scenario components for business transactions require their unambiguous identification.

Standards exist for the unambiguous identification of material objects. However, unambiguous identification of Persons (including individuals, organizations, and/or public administrations) in business transactions has always been a difficult issue. These are exacerbated in the dematerialized world of Open-edi. In order to resolve the issue of "unambiguous identification" of entities in a business transaction, (Persons, objects, processes, events, etc.), it has been decomposed into its two key components:

a) "unambiguous"; and,

b) "identification".

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In global business transactions, common business practices and standards exist for the identification of entities comprising a business transaction including Persons[12)].

Rule 4:

Existing standards shall be used to the greatest degree possible in the building and use of scenarios, scenario attributes and scenario components.

Rule 5:

The degree to which ambiguity in (electronic) business transactions can be minimized is directly related to the ability to realize the opportunities in, and potential of, Open-edi as well as its widespread adoption and use.

The term "unambiguous" is defined in 3.66. It recognizes and support the fact that the concept of “unambiguous” is related to the level of certainty and explicitness required in the semantics of recorded information interchanged as required to support the explicitly stated goal of a specified business transaction.

This definition of "unambiguous":

a) applies equally to business transactions which are paper-based and Open-edi based;

b) is a common requirement of all industry sectors;

c) is medium neutral, i.e. applies irrespective of the combination of IT technologies or platforms used; and,

d) applies to all three key components of the business transaction model (BTM), i.e. "Person", "process", and "data".

Guideline 5G1:

The nature and purpose of the business transaction determines the level of certainty (trust, reliability, accountability, etc.), required in the identification of the elements in a business transaction, (e.g. Person, product, service, etc.).

Approaching unambiguity in terms of levels of certainty and explicitness allows for linkage and harmonization with levels of assurance in authentication as part of security services and standards. However, the issue of identification is separate from, and should not be confused with, that of authentication. Identification is required to have been established before authentication can take place.

12) Key standards for the global unambiguous identification of Persons generally, and organizations and individuals specifically, are identified and summarized from a business transaction perspective in Annex *Existing standards for the identification of Persons (organizations and Individuals) in business transactions”.*

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Guideline 5G2:

The process of authentication presupposes the existence of an entity and the completion of the application of a rule-based identification process resulting in the assignment of an "identifier". Thus, the authentication process is a corroboration of an identification process[13)]***.***

The definition for identification is given in 3.26. It is based on the approach that the unambigous dentification of any entity is to be based on a rule-based process, explicitly stated, including the use attributes or data elements whose content value (or combination of values which are used to identify the orrucence or existence of a specified entity.

Rule 6:

Any entity relevant to, or used to support a business transaction, shall be assigned a unique and unambiguous identifier based on an identification process.

In the context of a business transaction, “identifier” is defined in 3.27.

Rule 7:

Natural names or natural language identifiers shall not be used as identifiers in business transactions, although they may be associated with them.

The definition of "name" is given in 3.35.

Consequently an "object" will have as many names as there exist linguistic expressions used to designate it. See further C.5

Rule 8:

Open-edi scenarios, scenario attributes, roles, Information Bundles, Semantic Components and other elements shall be identified through unique, unambiguous and linguistically neutral identifiers and with such identifiers may be associated with one or more names as needed for market, legal, localization and/or multilingual requirements.

6.1.5 Business transaction model: key components

Rule 9:

A business transaction requires Person, process and data.

These three fundamental elements of the Business Transaction Model (BTM) are represented graphically in Figure 7.

The essential BOV aspects of this business transaction model, along with associated rules, terms and definitions as well as other attributes, are explained in 6.2, 6.3 and 6.4.

13) There are multiple “standard” definitions for “identifier”. These and the standards in which they are found have been taken into account in the rules and definitions for “identification” and “identifier (business transaction”. (See further Annex C, C.4)

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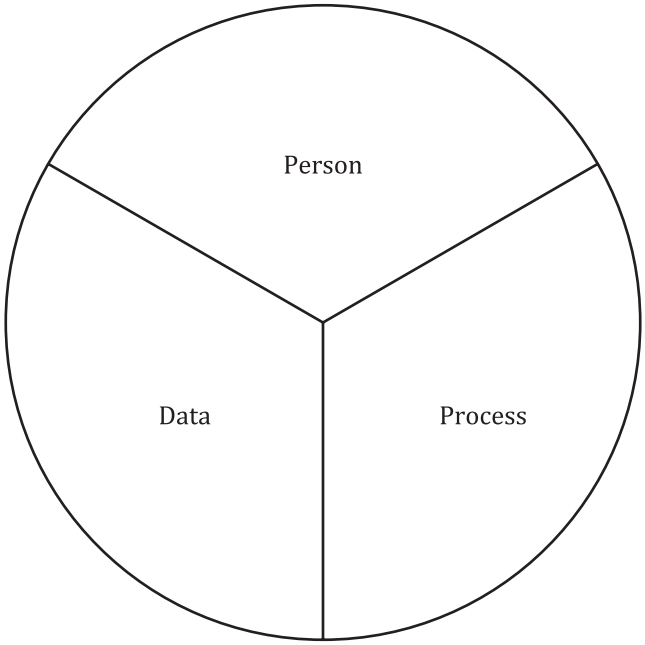

Figure 7 — Business Transaction Model — Fundamental components (Graphic Illustration)

6.1.6 Business transaction model: classes of constraints

In addition to its three fundamental elements, the Business Transaction Model requires “classes of constraints”. The Business Operational View derived for Open-edi shows that constraints are applied to business transactions.

A "constraint" is defined in 3.11.

It is up to Persons, who are the primary parties to a business transaction, to decide and agree on whether a particular role or function in a business transaction can be delegated to an agent or involve a third party. (See further 6.2.5)

The Open-edi Reference Model identified two basic classes of constraints, namely: “internal constraints” (see 3.33) and “external constraints” (see 3.23) (3.23).

The class of "internal constraints" has been derived to provide a simplified view of business transactions for which there are no external constraints or restrictions to the nature and conduct of the transaction. The only constraints are those mutually agreed to by the buyer and seller for the explicitly stated goal of the business transaction, i.e. they are self-imposed. This allows one to build scenarios and scenario components for referencing, registering and re-use as generic or base scenarios without having to include potential external constraints. The rules governing specification of Open-edi scenarios and their Components require that all applicable external constraints are required to be stated at the time of instantiation but need not exist at the time of registration. (See further, Clause 9, and Annex H.)

However, in most business transactions external constraints do apply, i.e. applicable laws and regulations. These range from taxation related regulation; health and safety or packaging and labelling requirements; ensuring that nature of the business transaction and/or the goods, services, and/or rights delivered do not comprise behaviour of a criminal nature[14]. Whilst laws and regulations exist within and among jurisdictional domains and are the primary source of external constraints on business transactions, categorization and specification of sub-classes of external constraints is not addressed in this document.

14) ISO/IEC 15944-5 was developed to address the issue of jurisdictional domains as they impact the identification and specification of external constraints on business transactions. It is also directed at being able to identify and reference laws and regulations impacting scenarios and scenario components.

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External constraints exist which are horizontal in nature. These are the common and generic rules for business transactions, (e.g. privacy/data protection, consumer policy, uniform commercial codes, etc.).

The imposition of these horizontal external constraints on business transactions is exemplified by the introduction of a third type of role in a business transaction, namely that of “regulator” as a third sub-type of Person as a player in a business transaction representing "public administration".

External constraints of a horizontal and common nature are constraints imposed by regulators (and enacted through public administrations) which apply regardless of the type of business or sector within which the business occurs. This categorization allows one to build scenarios and scenario components for referencing, registering and reuse of specific common sets of external constraints. These can then be combined with scenarios which focus on internal constraints for building application use scenarios.

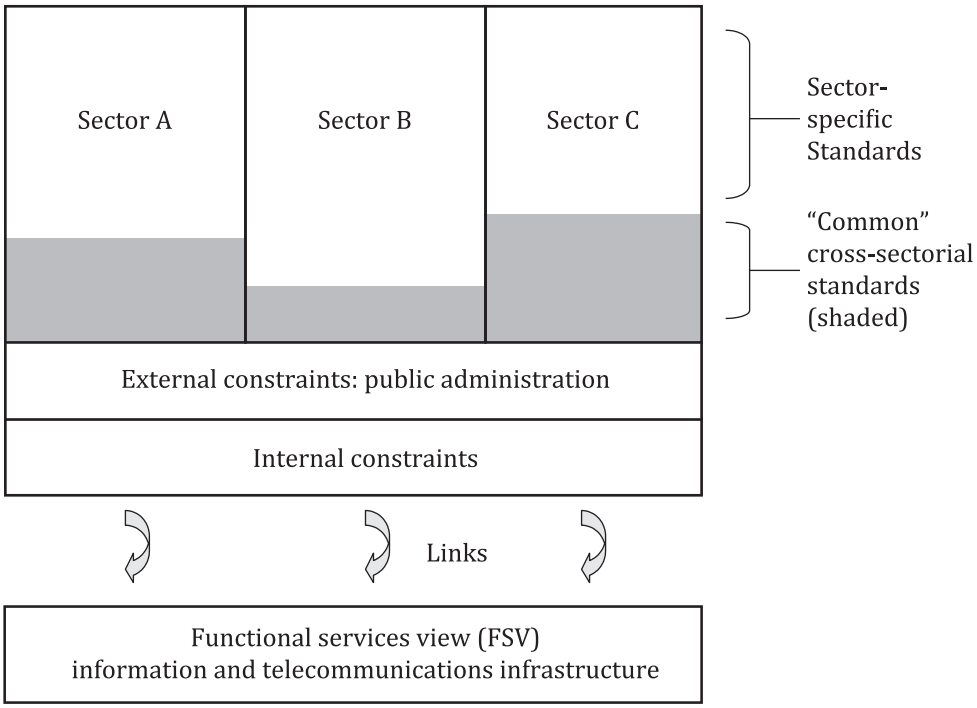

Figure 8 — Business Transaction Model — Classes of constraints

There are also external constraints that are of a sectorial nature. In addition, some external constraints can be common to two or more sectors and supported through common standards. Sectorial constraints are found in telecommunications, transportation and delivery, finance/banking, import/export restrictions specific to a good or service, inter-or intra-state trade, and so on. Where a sector imposes specific ways of conducting business transactions within itself and with other sectors, such sector specific constraints and conditions are required to be identified and specified where applicable, as part of specification of scenarios and scenario components.

NOTE 1 A useful characteristic of external constraints is that at the sectorial level national and international focal points and recognized authorities often already exist. The rules and common business practices in many sectoral areas are already known. Use of this document (and related standards) will facilitate the transformation of these external constraints (business rules) into specified, registered and re-useable scenarios and scenario components.

This allows one to build scenarios and scenario components for referencing, registering and re-use of sets of sectoral external constraints such as “customs clearance”, “transport of dangerous goods”, etc.

NOTE 2 There are also requirements for establishing common rules for interchanges between and among sectors. These rules are normally imposed by a particular sector on the others. For example, the banking sector can impose certain rules for the exchange of financial information between itself and other sectors. Sometimes the rules are established to enhance or facilitate services of a particular sector with others. The transportation sector is a good example. It establishes business rules in conjunction with other sectors for the transport and handling of speciality goods, (e.g. radioactive materials, live animals, etc.).

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These two basic classes of constraints on business transactions are illustrated in Figure 8.

6.2 Rules governing the Person component

6.2.1 Purpose

The purpose of the rules in this subclause includes:

a) incorporating and supporting a key aspect of the BOV, i.e. the making of business decisions and commitments;

b) capturing the unique attributes of Person as the only entity in business transactions able to make commitments; and

c) capturing the business operational requirements from both commercial and legal perspectives.

In addition, some common generic aspects of Person with respect to minimum external constraints for "individual," "organization," and "public administration" are introduced. (See further E.1.)

6.2.2 Person, personae, identification and Person signature

NOTE The need to differentiate among "Person", "personae", "identification" of the same, and then "Person signature" requires additional and explanatory text on identity and authenticity and is linked to "Registration Schema", "Registration Authority", etc. This information is provided in relevant clauses in Annex E, i.e. E.4 and E.5.

Rule 10:

An electronic business transaction, like business transactions in general, requires Persons as decision makers, (as the key real-world entity and point of departure) instead of information technology applications (devices, tokens, information systems, etc.).

Rule 11:

Irrespective of the use of any particular information technology and related devices in Open-edi, Persons are the <u>only</u> entities which are legally recognized as being able to make commitments, agree to the rights and obligations entered into, and can be held accountable for their actions, etc.

The three unique properties of Person already identified include:

a) a human being (natural person) or body corporate (legal or artificial person) has rights and duties recognized by law;

b) the ability to act in some capacity, make commitments and fulfil resulting obligations; and,

c) the ability to be able to be held accountable for actions, behaviours, decisions, etc.

From an (electronic) business transaction perspective, all three properties are required to exist/be present for an entity to be able to be identified and referenced as a Person.

Unlike (material) objects, Persons represent and identify themselves (as well as other Persons) in a variety of ways, i.e. through different personae, depending on the context of the business transaction. The set of rules which follows summarizes the key aspects of personae.

Rule 12:

A Person shall be able to be identified or represented in a variety of ways, and shall be able to have one or more personae.

Persona is identified in 3.48.

Figure 9 provides a graphical representation of the links of a Person (natural or legal) to its possible personae in different contexts and roles.

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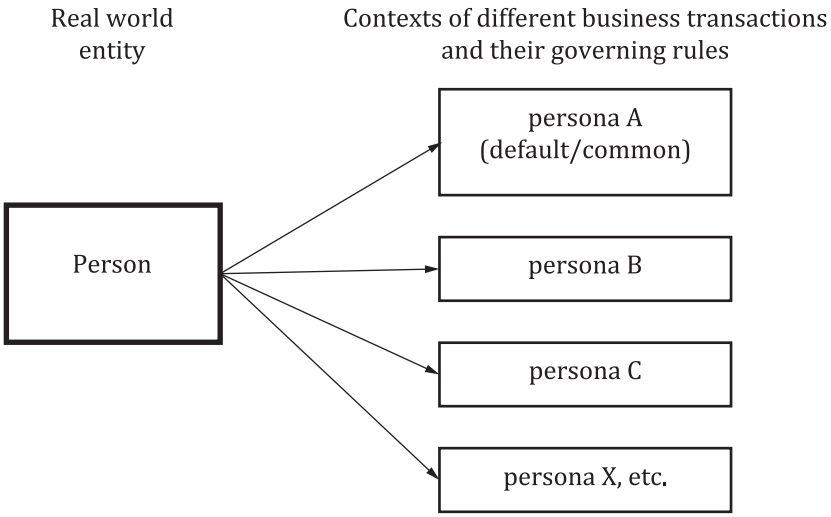

Figure 9 — Links of a Person to its persona(e) in the context of different business transactions and their governing rules

Rule 13:

The level of unambiguity, i.e. certainty/reliability, of a persona and resulting identification of the Person identity used by a Person shall be appropriate to the goal of the business transaction.

This level of certainty/reliability is a question of degree of granularity and level of specificity needed to prevent ambiguity. The accuracy of the identity or the certainty of the authority of an identity is determined by the requirement of the business transaction. It may vary with the potential liability involved.

Rule 14:

The persona used shall be associated with an identity that can be authenticated to the extent required for the goal of the business transaction.

Each business transaction will consider the persona used on its own merits. It is not certain that every business transaction will need to verify a persona before it can proceed.

Rule 15:

Business transactions having different goals may allow a Person to use the same persona and its associated identification schema (including resulting identifiers), while others may prohibit this.

Guideline 15G1:

A party to a business transaction has the option of prescribing the persona (and associated identifiers) acceptable to it for the purpose of establishing commitment, (e.g. as the data elements comprising a persona and rules governing their values in a business transaction are prescribed by the party offering the good, service, and/or right). A systematic approach to describing the persona and associated identifiers is known as a Registration Schema, and the entity registering the persona is known as a Registration Authority (RA). Usually, a Registration Authority assigns an identifier unique within that identification schema to each discrete Person/persona. A RA may use the ID of another Registration Schema if necessary.

Guideline 15G2:

A Person may have multiple names and a Person may change its name.

Guideline 15G3:

Names of natural persons are not unique. Many different discrete real-world natural persons can and do share the same name (and even date of birth or mother's maiden name, etc.).

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Guideline 15G4:

A natural person can and does identify him/herself in a business transaction through a variety of possible data elements comprising a name, (e.g. combination of given names, surname(s), nicknames, titles/qualifications, etc.).

Guideline 15G5:

A legal person can and does have multiple names, (e.g. legal, operating, marketing name, etc.), as well as various linguistic equivalents of the same. For example, a jurisdictional domain may well have more than one official language. Consequently, an organization may well have two or more official names, i.e. a linguistically equivalent name in each official language of that jurisdictional domain. This is especially true for names for public sector organizations in jurisdictional domains having more than one official language.

Guideline 15G6:

A name of a Person (natural or legal) does not, therefore, necessarily provide for unambiguous identification.

Guideline 15G7:

The number of types of (common) data elements pertaining to the name of a Person is finite. A set of standard data elements may serve as a template or catalogue for capturing and exchanging name information on Persons in electronic data interchange.

Guideline 15G8:

Associated with each persona of the same Person can be a single identifier, or several personae can use the same identifier, and/or, two or more identifiers can be associated with a single persona, (e.g. use of exactly the same "name" on multiple credit cards with different identifiers).

Figure 10 illustrates Person to persona(e) to identifier links. In Figure 10, different fonts and representations are used for “identifier” to recognize the wide variety in forms and information technologies used to capture unique identifiers[15)].

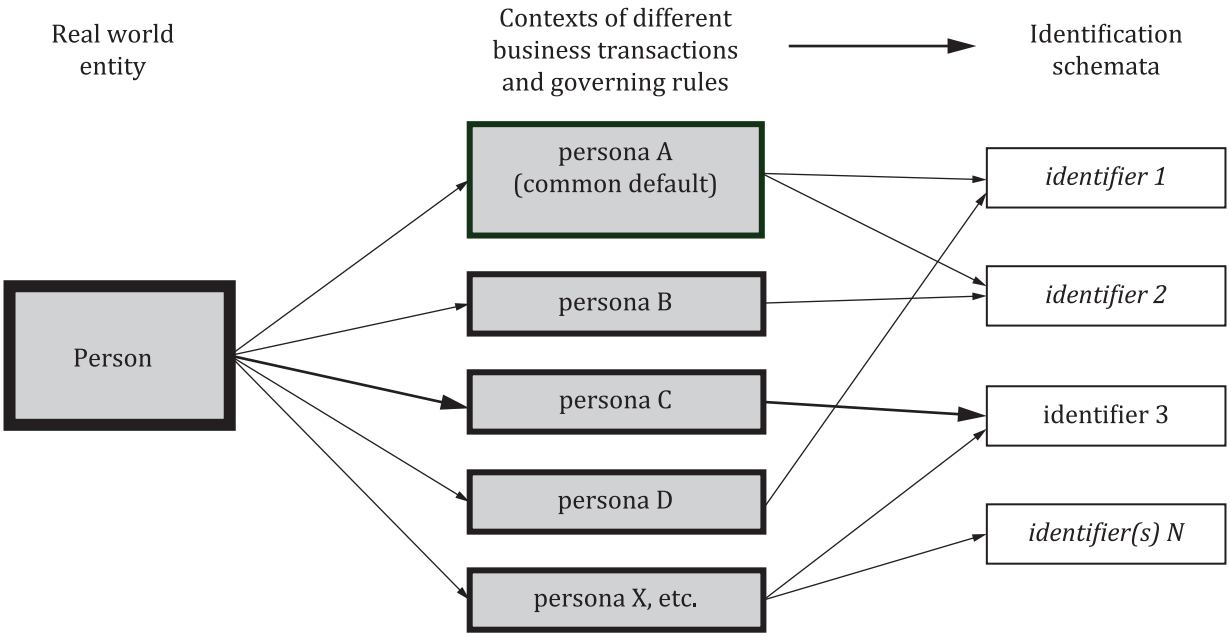

Figure 10 — Illustration of inks of a Person to persona(e) to identifier(s) issued through identification schemata applicable to the contexts of different business transactions

15) Figure 10 is illustrative only. The "thickness" of the lines is used to indicate the use of more common links between the persona of a Person and the use of that "persona" in an Identification Schema.

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Rule 16:

A Person can and does use different signatures and that needs be assumed to continue to be the case in present day business transactions.

A Person may have more than one form of its official signature as well as use of different information technologies in representing or interchanging such official signatures.

Rule 17:

An organization Person as an employee or officer acting on behalf of an organization "signs", i.e. links itself to a business transaction, on behalf of that organization, in a variety of ways.

Rule 18:

A Person controls the use of its signature.

Rule 19:

Depending on the context of the business transaction, a Person signature is used for the purposes of identification, authentication, authorization, and/or witnessing.

The definition of Person signature is given in 3.52**.** It is recognized that a Person signature can be any name reprensentation distinguishing mark or usual mark, which is created by and pertains to a Person, i.e. which that Person wishes to use in a business transaction and is acceptable to the Person providing the good, service, and/or right pertaining to specified business transaction.[16)]

Rule 20:

In an (electronic) business transaction, the end entities are Persons irrespective of the nature and combinations of technical components of the functional (support) services of the information infrastructure involved.

Rule 21:

A signature which is created by and/or pertains to a Person is deemed to be a Person signature.

Guideline 21G1:

Parties making commitments in a business transaction are Persons. However, as stated in 6.2.5 a Person as seller or buyer in a business transaction may delegate all or part of its commitment-making role to an agent and/or a buyer and seller may mutually delegate specified common commitments to a third party. They thus all may be signatories to a business transaction.

Guideline 21G2:

A Person signature may be associated with any information or role in a business transaction.

A Person signature can take different forms and be created by different processes, ranging from physical to advanced biometrics. Forms and processes by which Person signatures can be created and have legal status are not addressed in this document.

The interworking of the above rules results in a variety of combinations of linkages currently existing among personae, identifications, and Person signatures for the same single real-world Person. This is illustrated in Figure 11 where different fonts and representations are used for: “Person signature” to recognize the wide variety in forms and information technologies used to capture “Person signatures.”

16) It is a normal practice of a seller to provide more than one payment mechanisms for the instantiation of a business transaction (e.g. debit card, credit card, electronic fund transfers, paper check, etc.), It is likely that each of these payment methods will have their own signature requirements and forms.

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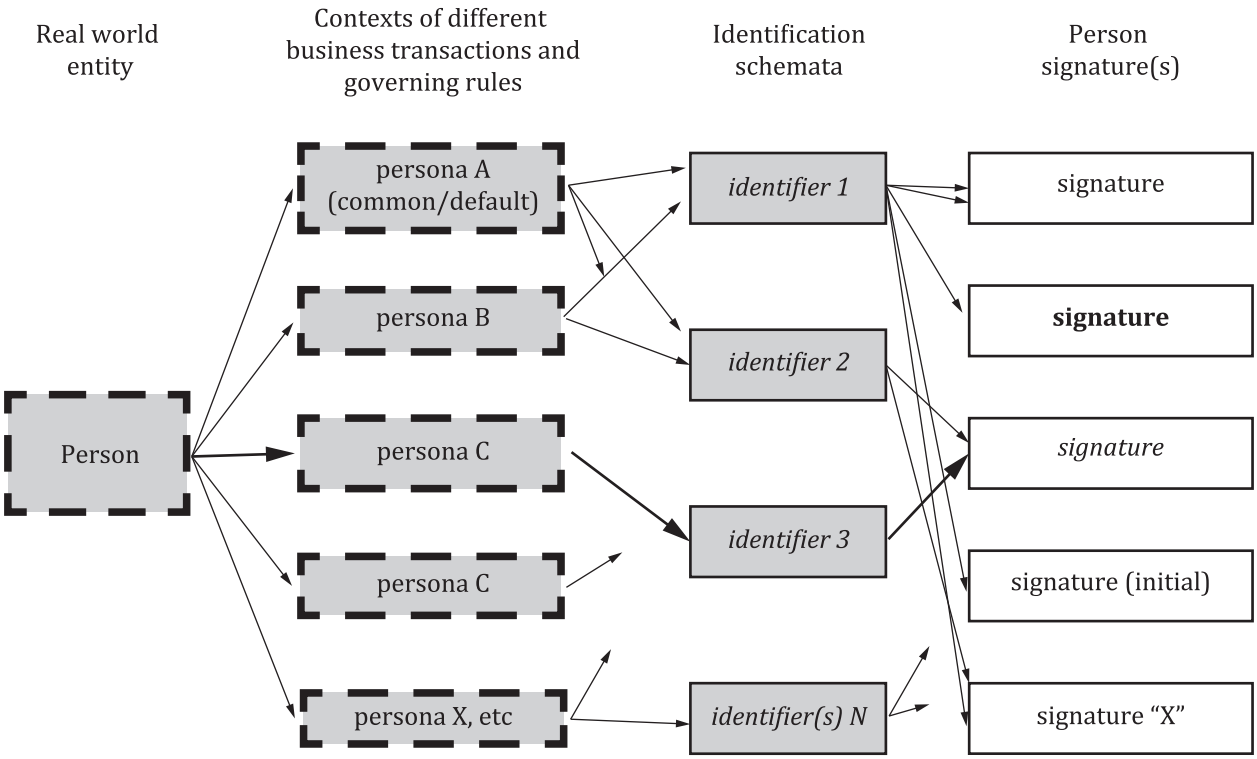

NOTE This figure is illustrative only. The "thickness" of the lines is used to indicate the use of more common links between the persona of a Person and the use of that "persona" in an Identification Schema.

Figure 11 — Illustration of relationships of links of a Person to (its) persona(e) to identification schemas and resulting identifiers to associated Person signatures — In the context of different business transactions and governing rules

6.2.3 Person — Identity and authentication

As determined in 6.2.2, a Person has one or more persona (and associated identifier(s) with each) depending on contexts of different business transactions and governing rules. However, with respect to a role in a specific instance of a particular business transaction, a Person will use a single combination of its persona and the associated identifier, i.e. as a Person identity.

Person identity is defined in 3.51.

Rule 22:

The Person identity, i.e. the persona and the associated identifier, used by a Person in a business transaction, shall be capable of being prescribed depending on the context and goal of the business transaction.

Figure 12 illustrates the range of links between Person and Person identity in the use of various combinations of "personae" and "identifiers".

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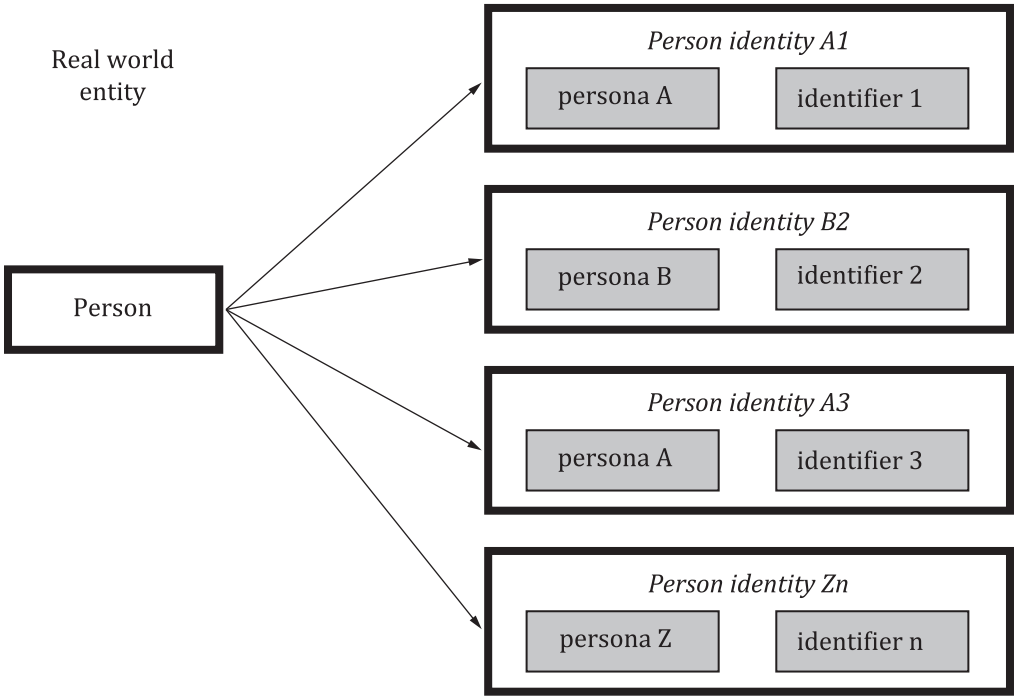

Figure 12 — Illustration of range of links between Person and Person identity(ies)

Business transactions differ in their nature and goals. The rules governing a business transaction, (a) may allow a Person to use one of several Person identities (e.g. one of several different credit cards or debit cards); or, (b) require a Person to have/use a pre-specified Person identity (e.g. a private health insurance card, a national health insurance card, etc.).

When a Person identity is presented for use in a business transaction, it has to be "recognized" by the other parties to the business transaction. Each party to the transaction may have its own rules governing the requirements for establishing a "Recognized Person identity (rPi)."

Recognized Person identity (rPi) is defined in 3.55.

Rule 23:

In a business transaction, a recognized Person identity (rPi) is established by either: (a) mutual recognition and acceptance; or, (b) by referring to an identifier in a Registration Schema of a Registration Authority.

NOTE Depending on the rules governing a business transaction, a Person identity for interchange purposes can be comprised of a small, finite set of data elements such as those required for identification systems for Persons based on international standards as found in ISO/IEC 6523, ISO/IEC 7501 or ISO/IEC 7812 (see further Annex C), or the set of data elements required can be more extensive but still is required to be finite and prescribed. These and similar specifications are outside the scope of this document and are expected to be registered as "re-useable" Information Bundles in accordance with ISO/IEC 15944-2.

This is illustrated in Figure 13.

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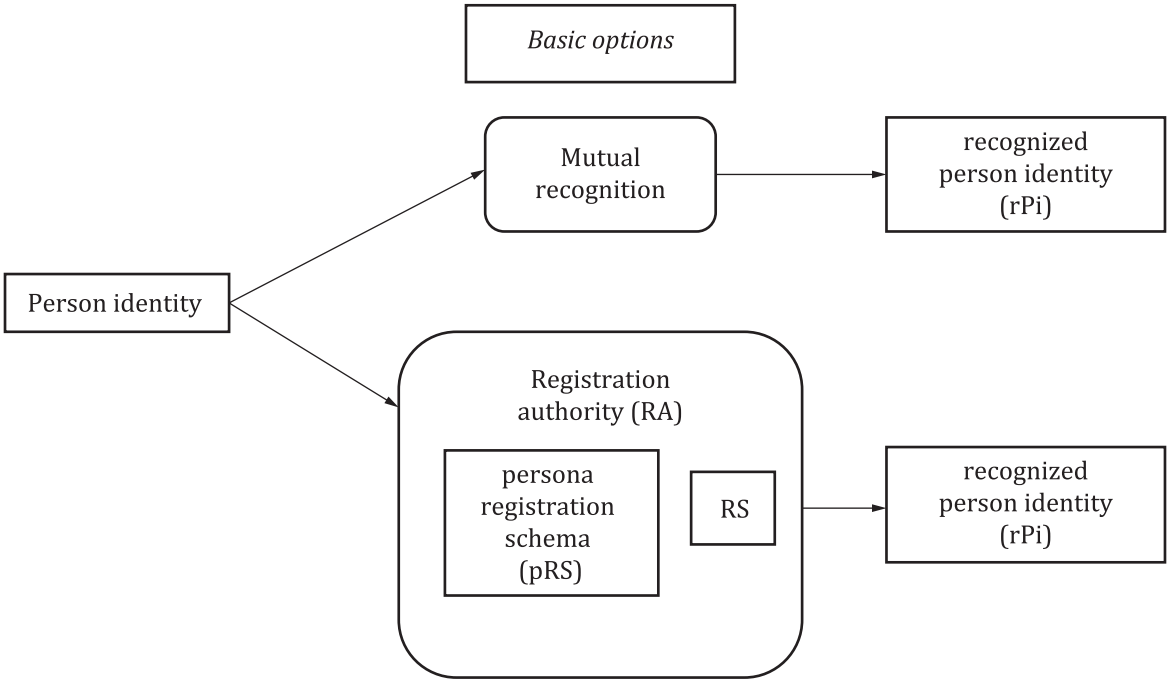

Figure 13 — Illustration of two basic options for the establishment of a recognized Person identity based on a Person identity for use in a business transaction

Guideline 23G1:

A recognized Person identity based on a Registration Schema of a Registration Authority has the added attribute of being re-useable and thus is the preferred approach in support of Open-edi.

In this document, persona Registration Schema is defined in 3.49. It is necessary in the specification of a persona of a Person to have formal definitions of the data fields and the allowable contents of these fields including the rules for the assignment of identifiers in the relevant persona registration schema. Such entries in the pRS may also be referred to as persona profile of a Person.

In this document, Registration Authority is defined in 3.57.

Rule 24:

A Registration Authority (RA) for Persons shall have explicitly stated rules for transforming a Person identity (Pi) into a recognized Person identity (rPi) to meet a stated business requirement.

Guideline 24G1:

The rules governing a business transaction may either require the use of a specified recognized Person identity (rPi) or allow for several of a similar nature. (For example, credit card payment may be acceptable from several credit card issuers).

The establishment or verification of a recognized Person identity will require the capability for authentication, i.e. Person authentication, especially in electronic business transactions.

Person authentication is defined in 3.50.

For Person authentication to be successful, the following actions are required to have already taken place:

a) a Person identity need to have been established; and

b) the Person identity is required to be recognized, i.e. a recognized Person (rPi), identity is required to exist.

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Rule 25:

In a business transaction, Person authentication is established by either: (a) mutual recognition and acceptance; or, (b) referring to predefined Registration Schema and process.

6.2.4 Person and roles — Buyer and seller

Rule 26:

The two most common roles of a Person in a business transaction are those of buyer (3.8) and seller (3.62).

One should note that in the two definitions for buyer and for seller, the phrase “providing an acceptable equivalent value” recognizes that it is for the buyer and the seller to mutually agree to what the “equivalent value” is. A mutually accepted value can be of a monetary nature and defined as such, in a barter arrangement, the value can be of a non-monetary nature, etc. With respect to the phrase "to get possession of" and "to hand over", this may or may not involve full transfer of ownership rights. For example, the buyer may purchase only a "right to use", i.e. the seller retains the intellectual property rights on the good or service bought by the buyer.

Rule 27:

Unless bound by external constraints, buyers and sellers as Persons are free to undertake any business transaction involving any good, service, and/or right they mutually agree to.

Rule 28:

External constraints governing rules and practices of buyers and sellers in business transactions apply either to Persons (undifferentiated) or distinguish among individuals, organizations, and public administrations.

6.2.5 Person and delegation to “agent” and/or “third party"

Rule 29:

Rights or obligations arising from commitments in a business transaction shall be fulfilled either directly by the Person as the end entity or by an agent acting on its behalf.

In the context of this document, "agent" is defined in 3.1.

In a business transaction, agents are those who undertake a specific business process or function on behalf of a buyer or a seller. This basic relationship of an agent to a buyer is illustrated in Figure 14 and the relationship for a seller implied.

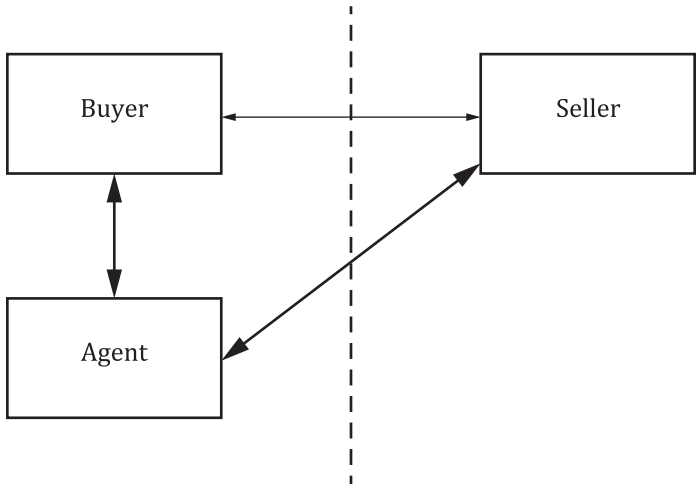

Figure 14 — Illustration of buyer-seller interaction with buyer using an agent

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Rule 30:

The ability to delegate a role to an agent shall be explicitly stated; and if constraints are required to be satisfied before such delegation can take place, they shall be explicitly stated.

Rule 31:

Where delegation of a role cannot take place, this shall be explicitly stated.

Rule 32:

A business transaction takes place primarily between two Persons, i.e. a buyer and a seller. Other Persons, i.e. third parties, may fulfil specified role(s) or functions(s) on mutual agreement of the two primary Persons, or as a result of external constraints.

The generic definition for "third party" is given in 3.65.

In addition to notarial-type functions, clearinghouses and exchanges are examples of third parties. The nature of the linkages between buyer and seller and a common third party is illustrated in Figure 15.

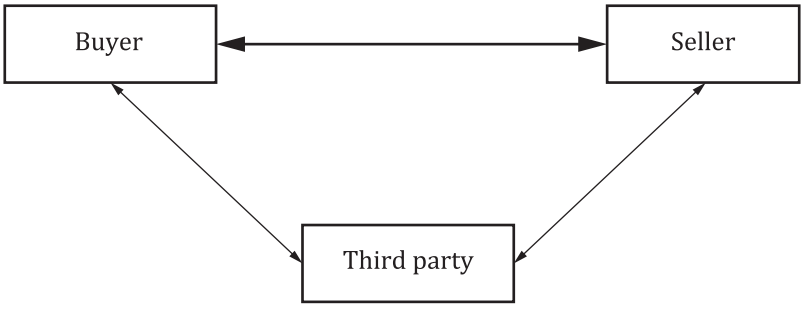

Figure 15 — Illustration of buyer and seller with a third party

6.2.6 Person and external constraints — The "regulator"

Rule 33:

External constraints exist on the provisioning of goods and services and the behaviour of Persons as players in business transactions including those provided via electronic commerce.

The introduction of external constraints on the behaviour of Persons and their roles as buyers or sellers in a business transaction introduces an additional, third role, the regulator.

Entities which impose external constraints on market behaviour and associated business transactions of buyers and sellers are deemed to be "regulators". "Regulator" is defined in 3.59.

6.2.7 Person and external constraints: individual, organization, and public administration

Most business transactions include some minimum external constraints. A common, almost generic requirement of such external constraints requires one to distinguish whether the Persons participating in a business transaction are deemed to be “individuals”, “organizations”, and/or “public administrations.” This subclause focuses on these minimum external constraint requirements. From a legal perspective, generally applicable world-wide, there are basically two kinds of Persons, namely, "natural persons", and "legal persons" (a.k.a. "artificial persons").

It is understood that:

a) a "natural person" can participate in a business transaction as either an individual, organization, and/or public administration; and,

b) a "legal person" participates in business transactions only as an organization.

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Rule 34:

From a minimal external constraints perspective, the three basic sub-types of Persons as role players in any business scenario are: (a) individual, (b) organization, and, (c) public administration.

Consequently, this document uses the terms individual, organization and public administration as the three basic sub-types of Persons as role players in any business transaction involving minimum external constraints. Figure 16 illustrates this perspective.

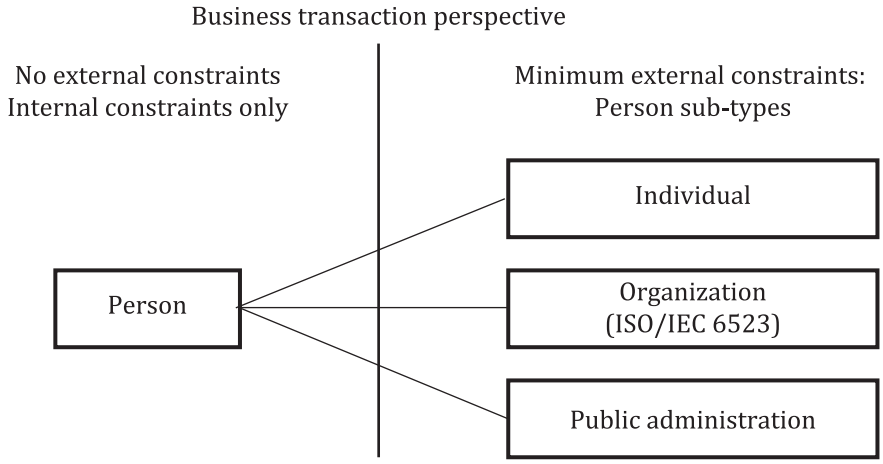

Figure 16 — Integrated business transaction perspective of Person: Minimum external constraints

Individual is defined in 3.28.

With respect to this definition of individual, readers should note the following underlying assumptions:

a) The use of the term Person in the definition of individual means that an individual inherits all the properties and behaviours of Person.

b) The definition of individual is neutral towards and independent of:

— the manner in which various jurisdictional domains have different rules as to what criteria are required to be met for an entity to be considered/qualify as a "natural person";

— any qualifications which a jurisdictional domain may place on natural persons with respect to their ability to make commitments, being held responsible/accountable for, etc. (e.g. "minors", "being incapacitated", etc.).

c) This definition is harmonized with basic concepts and requirements underlying Privacy/Data Protection, i.e. personal information, which is defined as "information about an identifiable individual". This includes information provided by an individual about him/herself to another Person in the context of an eventual delivery of a good, service and/or right by that other Person in the role of a seller. On individual, see further E.3.

It is also important to keep in mind that individual is the attribution of the property of indivisibility to a natural person, i.e. in making commitments having rights/obligations, being accountable/responsible for, etc.

Rule 35:

A legal (or artificial) Person consists of one or more natural persons and/or one or more other legal persons.

A unifying term and common concept used internationally is the standard term "organization" as the collective common term for all the different ways legal (or artificial) persons can be composed and be recognized in various jurisdictional domains.

The term “organization” is defined in ISO/IEC 6523-1.

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Rule 36:

An organization, unlike an individual, can have more than one organization parts identified for information exchange pertaining to a business transaction among autonomous parties.

The term “organization part” is also defined in ISO/IEC 6523-1.

Rule 37:

In a business transaction, an organization Person may make commitments for an organization or organization part, i.e. as authorized to do so on behalf of the organization.

An "organization Person" is defined in 3.46.

Figure 17 illustrates the linkages among organization, organization part, and organization Person and does so in the context of commitment exchange versus information exchange. The “(1)” information exchange and organization part aspects are based on ISO/IEC 6523. The added “(2)” commitment exchange and organization Person aspects are based on this document.

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