INTERNATIONAL STANDARD

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Information technology — Business agreement semantic descriptive techniques —

Part 1: Operational aspects of Open-edi for implementation

Technologies de l'information — Techniques descriptives sémantiques des accords d'affaires —

Partie 1: Aspects opérationnels de l'Edi ouvert pour application

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Contents

Page

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO/IEC 15944 may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 15944-1 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 32, *Data management and interchange*.

ISO/IEC 15944 consists of the following parts, under the general title *Information technology — Business agreement semantic descriptive techniques*:

— *Part 1: Operational aspects of Open-edi for implementation*

— *Part 2: Registration of scenarios and their components*

— *Part 3: Open-edi description techniques*

— *Part 4: Business transaction scenarios — Accounting and economic ontology*

Annexes A and B form a normative part of this part of ISO/IEC 15944. Annexes C to J are for information only.

0 Introduction

0.1 Purpose and overview

ISO/IEC 14462 Open-edi Reference Model[1)] described the conceptual architecture necessary for carrying out Open-edi. That architecture described the need to have two separate and related views of the business activities. The first is the Business Operational View (BOV). The second is the Functional Service View (FSV). Figure 1 from ISO/IEC 14662 illustrates the Open-edi environment (for definitions of the terms in Figure 1 use 3.1).

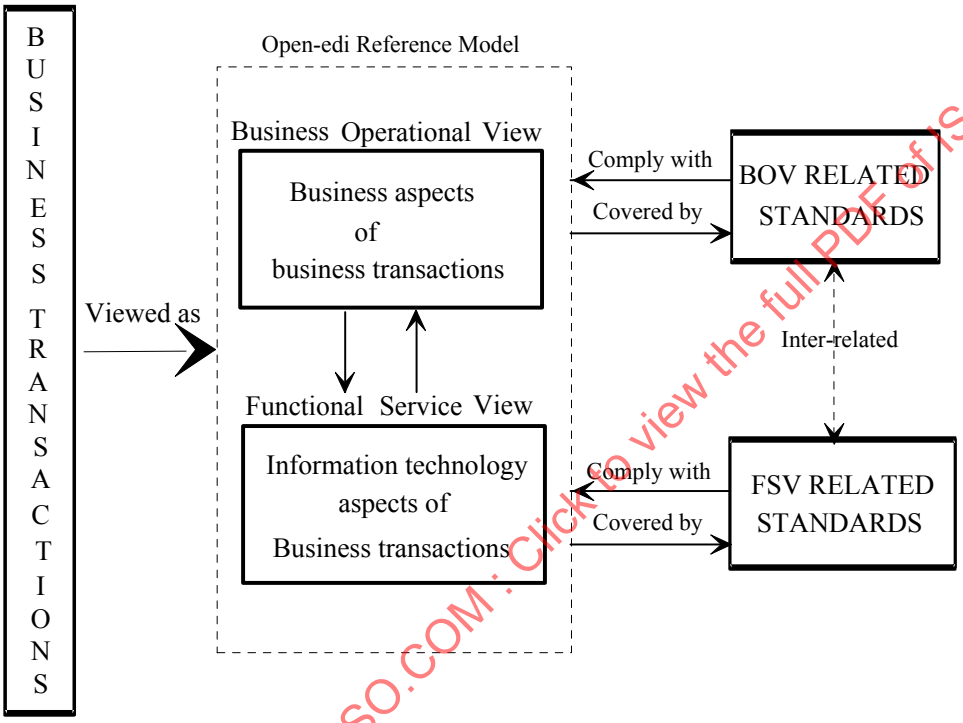

Figure 1 — Open-edi environment

In the BOV, the requirements that the business puts on the exchange of information are described using a modelling technique. ISO/IEC 14462 recognized that there was no single modelling technique identified whilst the IS was in preparation that would satisfy all of the conditions which could be identified that the FSV would need as input. 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.

1) ISO/IEC 14662 Information technology - Open-edi Reference Model/Technologies de l'information - Modèle de référence EDI-ouvert. The English and French versions of this ISO/IEC standard are publicly available. {See <http://www.jtc1.org>}

To provide for a situation where business users may select from a range of modelling systems, selection criteria identifying the characteristics which any suitable modelling system must 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 must be able to relate to specific Information Bundles. This relationship has to be precise because any supporting computer application 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 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 computer 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 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, this standard is the first of a multi-part standard that 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.” The second part of this standard focuses on identification, registration, referencing and re-use of scenarios, their attributes and components. {See further 0.6}

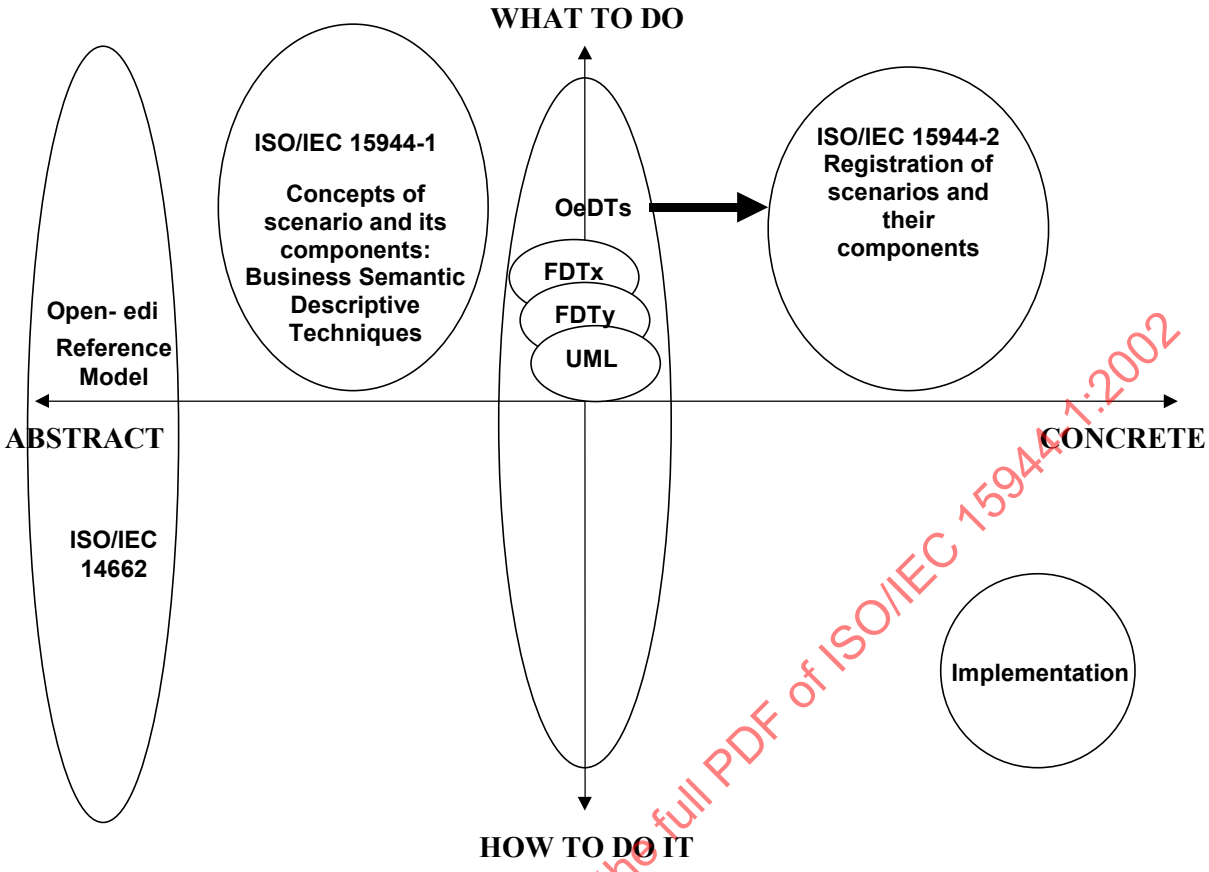

Figure 2 — Aspects of ISO/IEC 15944

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

The evolution of information and communications technologies 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 organizations.

Standards required for Open-edi cover a large spectrum of areas and include commercial aspects, support for national and international laws and regulations, information technology perspectives, telecommunications and interconnections, security service, etc. To these are added public policy requirements of a generic and horizontal nature such as consumer protection, privacy, etc. Annex A in the ISO/IEC 14662 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.

In addition, the widespread adoption and use of Internet and World Wide Web (WWW)-based technologies by organizations 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[2]:

— commercial frameworks and associated requirements;

— legal frameworks and associated requirements;

— public policy requirements particularly those of a generic nature such as consumer protection, privacy, etc.;

— sectorial and cross-sectorial requirements;

— 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 jurisdiction or desired for providing a good, service, and/or right in a particular market.[3] Here distinguishing between information technology (IT) interfaces and their multiple human interface equivalents is the recommended approach. (For an example, see Annex B below.)

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

2) This list of sources of requirements is a summary of Annexes A and B of ISO/IEC 14662:1997 Open-edi Reference Model; (titles in English and French):

— Annex A (Informative) Standardization areas and types of standardization activities [ISO/IEC 14662 (E) pages 25-29]./Annexe A (Informative) Domaines de normalisation et types d'activités de normalisation pour l'EDI-ouvert [ISO/IEC 14662 (F) pages 26-30];

— Annex B (Informative) Requirements for Open-edi standards [ISO/IEC 14662 (E) pages 30-33]/Annexe B (Informative) Exigences portant sur les normes d'EDI-ouvert. [ISO/IEC 14662 (F) pages 31-35].

3) See further the Chapter 6 "Horizontal Aspects" (pages 22-28) of the "Report of the ISO/IEC JTC1 Business Team on Electronic Commerce" (ISO/IEC JTC1 N5296).

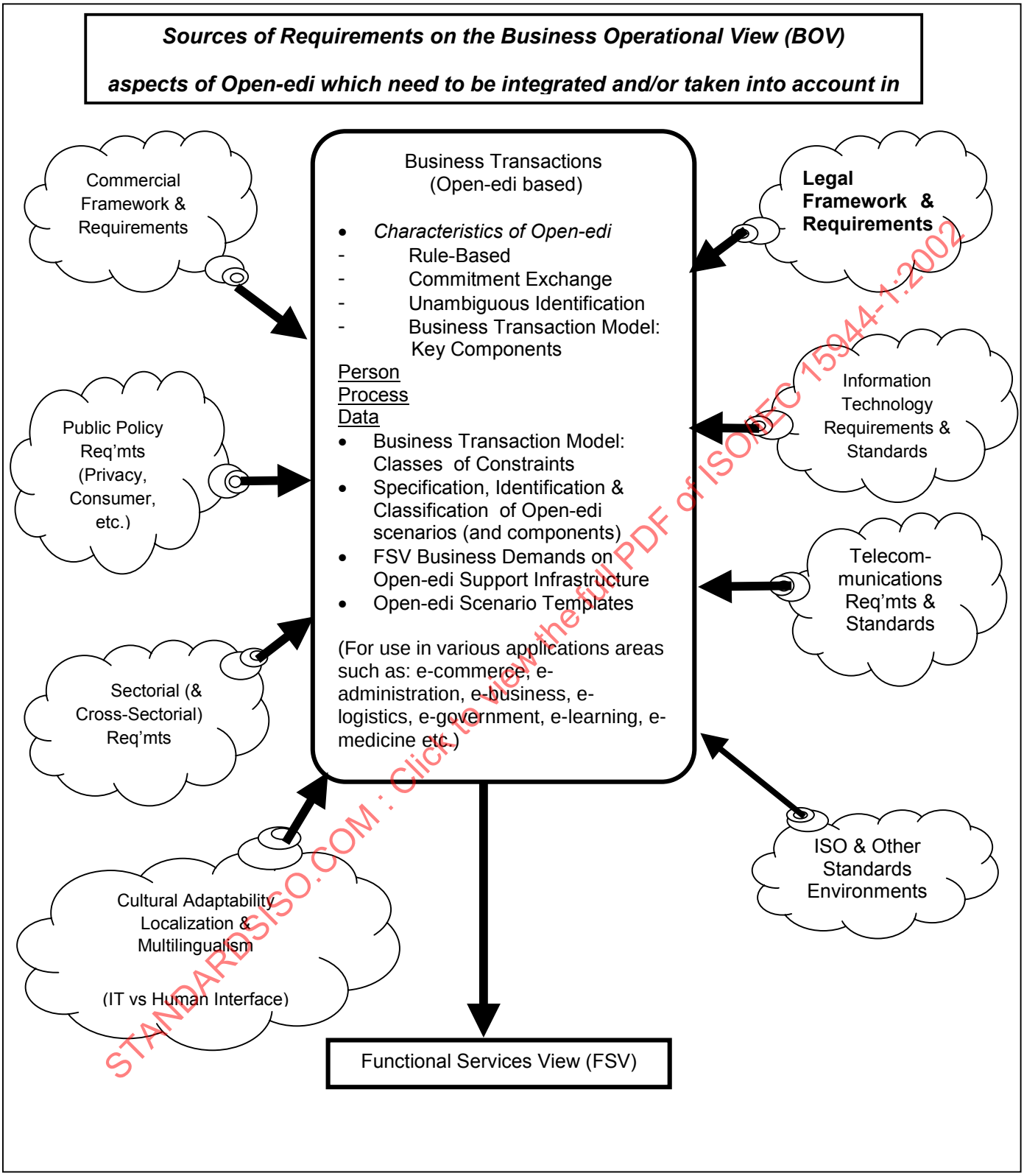

Figure 3 — Integrated View — Business Operational Requirements

0.3 Business operational view (BOV), Open-edi and E-commerce, E-business, etc.

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

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

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

— using information technology (computers and telecommunications);

— interchanging electronic data involving establishment of commitments among Persons[5)].

From a commercial, legal and standardization perspective, one can view electronic commerce as:

electronic commerce
a category of *business transactions*, involving two or more *Persons*, enacted through electronic data interchange, based on a monetary and for profit basis. (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:

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

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

3) commitments among persons being established through electronic data interchange;

4) computational integrity and related characteristics; and,

5) the above being specifiable through Formal Description Techniques (FDTs)[6)] and executable through information technology systems for use in real world actualizations;

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

These five requirements 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).

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4) The ISO/IEC JTC1 Business Team on Electronic Commerce (BT-EC) in its Report to JTC1 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)".

ISO/IEC JTC1 N5296 "Report to JTC1: Work on Electronic Commerce Standardization to be initiated". 4 May 1998, 74 p.

5) In this standard the term “party(ies)” is used in its generic context independent of roles or categories of “Person”. It assumes that a party has the properties of a “Person”.

6) The Formal Description Technique (FDT) used in support of this standard is "Unified Modelling Language (UML). UML is being progressed as new international standard ISO/IEC 19501 by ISO/IEC JTC1/SC7 titled "*Information technology — Unified Modeling Language (UML) — Part 1: Specification [Technologies de l'information — Langage de modélisation unifié (UML) — Partie 1: Spécification]*.

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

When the ISO/IEC 14662 Open-edi Reference Model standard was being developed, the "Internet" and "WWW" were an embryonic stage and their impact on private and public sector organizations was not fully understood. The Business Operational View (BOV) was therefore initially defined as:

— "a perspective of business transactions limited to those aspects regarding the making of business decisions and commitments among organizations which are needed for the description of a business transaction".

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 standard. Further, ISO/IEC 14662 did not define "commitment", nor the discrete properties and behaviors an entity must 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 ISO/IEC 15944-1 the term "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 being actually made between and among machines (automata or computer programs) acting under the direction of those legally capable of making commitment, rather than the individuals in their own capacities. It was also recognized that in some jurisdictions commitment 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 requirement(s) laid down by a jurisdiction, or where an individual is prevented by a relevant jurisdiction from being able to make commitment.

To address these extended requirements an additional term: 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 reader should understand that:

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

— "individual", "organization" and "public administration" are defined terms representing the three common sub-types of "Person";

— 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 standard. A "party to a business transaction" has the properties and behaviors of a "Person". {See further below Clause 6, and in particular 6.1.3 and 6.2}.

0.5 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 modeling processes, work flow and information flow. This standard provides methods for identifying primitive or common components so that there is a) high likelihood of reusability and b) ability to locate suitable components in registries. A key purpose of this standard is to enable support of legal and regulatory requirements in business transactions.

The document provides two checklists to guide the reader 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 must be accessible to all organizations in order to minimize resources needed to communicate between parties in a clear and unambiguous manner. Designers must therefore ensure that scenarios and components are designed to be interoperable and re-useable. They must also be clearly described such that a recipient can interpret them without external information.

This standard focuses on addressing horizontal, generic issue 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 standard 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 standard, a series of informative annexes has been developed and is included. The purpose of these informative annexes is to provide added informative and explanatory text to the normative part of this standard. They have been organized to mirror the sequence of the clauses of the normative part. Users who have difficulty in understanding the necessary short, explicit text of the normative part of this standard are advised to read the related informative and explanatory text in the Annexes.

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

Part 1 of the standard serves as the 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 further Clause 9}. Registration aspects of Open-edi, including requirements, procedures, etc. are covered in Part 2 of the ISO/IEC 15944 standard titled "*Information technology - Business Agreement Semantic Descriptive Techniques - Part 2: Registration of Scenarios, Scenario Attributes and Scenario Components*". Part 2 supports the registration of scenarios, scenario attributes and scenario components as "objects". The objective of Part 2 here is the identification, registration, referencing and re-useability of common objects in a business transaction. Re-useability 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. Part 2 fills this gap.

Information technology — Business agreement semantic descriptive techniques —

Part 1: Operational aspects of Open-edi for implementation

1 Scope

Integrated business operational view (BOV)

The Open-edi Reference Model (ISO/IEC 14662, Section 4) states:

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

This BOV-related standard addresses the fundamental requirements of the commercial and legal frameworks and their environments on business transactions, and 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 JTC1 of "cultural adaptability" is supported in this standard. This BOV standard also supports requirements arising from the public policy/consumer environment, cross-sectorial requirements and the need to address horizontal issues.[7)] This BOV standard integrates these different sets of requirements. See above Figure 3.

This standard 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 standard serve as a common bridge among 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 standard contains a methodology and tool for specifying common business practices as parts 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.

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7) See further on these requirements the Recommendations of the ISO/IEC JTC1 Business Team on Electronic Commerce (BT-EC) [Ref: ISO/IEC JTC1 N5296].

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 15944. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO/IEC 15944 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO/IEC 14662:1997, *Information technology — Open-edi reference model*

ISO/IEC 11179-1:1999, *Information technology — Specification and standardization of data elements — Part 1: Framework for the specification and standardization of data elements*

ISO/IEC 11179-3:1994, *Information technology — Specification and standardization of data elements — Part 3: Basic attributes of data elements*

ISO/IEC 10181-2:1996, *Information technology — Open Systems Interconnection — Security frameworks for open systems: Authentication framework*

ISO/IEC TR 13335-1:1996, *Information technology — Guidelines for the management of IT Security — Part 1: Concepts and models for IT security*

ISO/IEC *Directives*, Part 1, Section 2.5.6, 1998

ISO/IEC Guide 2:1996, *Standardization and related activities — General vocabulary*

ISO/IEC 2382 (all parts), *Information technology — Vocabulary*

ISO/IEC 9798-1:1997, *Information technology — Security techniques — Entity authentication — Part 1: General*

ISO 1087 (all parts), *Terminology work — Vocabulary*

ISO/IEC 6523 (all parts), *Information technology — Structure for the identification of organizations and organization parts*

ISO/IEC 10646-1:2000, *Information technology — Universal Multiple-Octet Coded Character Set (UCS) — Part 1: Architecture and Basic Multilingual Plane*

ISO 639-1:2001, *Codes for the representation of names of languages — Part 1: Alpha-2 code*

ISO 639-2:1998, *Codes for the representation of names of languages — Part 2: Alpha-3 code*

ISO 19108, *Geographic information — Temporal schema*

ISO 8601:2000, *Data element and interchange — Information interchange — Representation of dates and times*

3 Terms and definitions

For the purposes of this part of ISO/IEC 15944, the following terms and definitions apply.

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

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

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

[ISO/IEC 14662:1997 (3.1.1)]

3.3
authentication
the provision of assurance of the claimed identity of an *entity*

[ISO/IEC 10181-2:1996]

3.4
authenticity
the property that ensures that the identity of a subject or resource is the one claimed. Authenticity applies to *entities* such as users, processes, systems and *information*

[ISO/IEC TR 13335-1:1996 (3.3) monolingual (English) only]

3.5
business
a series of processes, each having a clearly understood purpose, involving more than one organization, realized through the exchange of information and directed towards some mutually agreed upon goal, extending over a period of time

[ISO/IEC 14662:1997 (3.1.2)]

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

[ISO/IEC 14662:1997 (3.1.3)]

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

[ISO/IEC 14662:1997 (3.1.4)]

3.8
buyer
a *Person* who aims to get possession of a good, service, and/or right through providing an acceptable equivalent value, usually in money, to the *Person* providing such a good, service, and/or right

3.9
commitment
the making or accepting of a right, obligation, liability or responsibility by a *Person* that is capable of enforcement in the jurisdiction in which the commitment is made

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 that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments

NOTE Consensus need not imply unanimity. [Based on ISO/IEC Directives, Part 1, Section 2.5.6, 1998; see also ISO/IEC Guide 2: 1996 (1.7)]

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

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

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

NOTE 3 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
a *buyer* who is an *individual* to whom consumer protection requirements are applied as a set of *external constraints* on a *business transaction*

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

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

NOTE 3 It is recognized that external constraints on a buyer of the nature of consumer protection may be peculiar to a specified jurisdiction.

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

NOTE Data can be processed by humans or by automatic means [ISO/IEC 2382:1993]

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

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

[ISO/IEC 11179-3:1994 (3.3)]

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

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

NOTE Differs from the entry 17.06.02 in ISO/IEC 2382-17. [ISO/IEC 2382-04:1998 (04.07.01)]

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

[ISO/IEC 14662:1997(E) (4.2.1)]

3.18
distinguishing identifier
data that unambiguously distinguishes an *entity* in the authentication process

[ISO/IEC 10181-2:1996]

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

[ISO/IEC 14662:1997 (3.1.5)]

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 An entity exists whether data about it are available or not. [ISO/IEC 2382-17:1996 (17.02.05)]

3.21
entity authentication
the corroboration that the *entity* is the one claimed

[ISO/IEC 9798-1:1997 (3.3.11) monolingual (English) only]

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

[ISO/IEC 2382-17:1996 (17.02.14)]

3.23
external constraint
a *constraint* which takes precedence over *internal constrains* in a *business transaction*, i.e., is external to those agreed upon by the parties to a *business transaction*

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

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

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

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

EXAMPLE 1 only a qualified medical doctor may issue a prescription for a controlled drug;

EXAMPLE 2 only an accredited share dealer may place transactions on the New York Stock Exchange;

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

NOTE 5 Where the Information Bundles (IBs), 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 must be recorded.

EXAMPLE 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 A minimum external constraint applicable to a business transaction often requires one to differentiate whether the Person, i.e., 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) {JTC1 directives}
a specification method based on a description language using rigorous and unambiguous rules both with respect to developing expressions in the language (formal syntax) and interpreting the meaning of these expressions (formal semantics)

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

[ISO/IEC 14662:1997 (3.1.7)]

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

3.27
identifier (in business transaction)
an unambiguous, unique and a linguistically neutral value, resulting from the application of a rule-based *identification* process. Identifiers must be unique within the *identification* scheme of the issuing authority

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

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

[ISO 2382-1:1993 (01.01.01)]

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

[ISO/IEC 14662:1997 (4.1.2.2)]

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

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

[ISO/IEC 14662: 1997 (3.1.8)]

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

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

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

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

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

NOTE 3 This definition of "medium" is independent of:

i) form or format of recorded information;

ii) physical dimension and/or size; and,

iii) any container or housing that is physically separate from material being housed and without which the medium can remain a functional unit.

NOTE 4 This definition of "medium" also captures and integrates the following key properties:

i) the property of medium as a material in or on which information or data can be recorded and retrieved;

ii) the property of storage;

iii) the property of physical carrier;

iv) the property of physical manifestation, i.e., material;

v) the property of a functional unit; and,

vi) 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* by a linguistic expression

[ISO 1087:1990 (5.3.1.3)]

3.36
object
any part of the perceivable or conceivable world

NOTE Objects may also be material, (e.g., engine) or immaterial, (e.g., magnetism) [ISO 1087:1990 (2.1)]

3.37
Open-edi
electronic *data interchange* among multiple autonomous *organizations* to accomplish an explicit shared business goal according to *Open-edi standards*

[ISO/IEC 14662:1997 (3.1.9)]

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

[ISO/IEC 14662:1997 (4.1.1)]

3.39
Open-edi Party (OeP)
an *organization* that participates in Open-edi

[ISO/IEC 14662:1997 (3.1.11)]

NOTE Often in this ISO/IEC 15944-1 standard referred to generically as "party" or "parties" for any entity modelled as playing a role in Open-edi scenarios.

3.40
Open-edi scenario
a formal specification of a class of *business transactions* having the same business goal

[ISO/IEC 14662:1997 (3.1.12)]

3.41
Open-edi standard
a standard that complies with the Open-edi Reference Model

[ISO/IEC 14662:1997 (3.1.10)]

3.42
Open-edi system
an *information technology system* which enables an *Open-edi Party* to participate in *Open-edi transactions*

[ISO/IEC 14662:1997(E) (4.2.1)]

3.43
Open-edi transaction
a *business transaction* that is in compliance with an *Open-edi scenario*

[ISO/IEC 14662:1997 (3.1.13)]

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

NOTE The kinds of organizations covered by this International Standard include the following examples:

EXAMPLE 1 An organization incorporated under law.

EXAMPLE 2 An unincorporated organization or activity providing goods and/or services including:

- partnerships;
- social or other non profit organizations or similar bodies in which ownership or control is vested in a group of individuals;
- sole proprietorships
- governmental bodies.

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

[ISO/IEC 6523-1: 1998 (3.1)]

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

[ISO/IEC 6523-1:1998 (3.2)]

3.46
organization Person
an *organization part* which has the properties of a *Person* and thus is able to make *commitments* on behalf of that *organization*

NOTE 1 An organization can have one or more organization Persons.

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

NOTE 3 An organization Person can be a "natural person" such as an employee or officer of the organization.

NOTE 4 An organization Person can be a legal person, i.e., another organization.

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

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

NOTE 2 Person is capitalized to indicate that it is being utilized as formally defined in the standards and to differentiate it from its day-to-day use.

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

3.48
Person authentication
the provision of the assurance of a *recognized Person identity (rPi)* (sufficient for the purpose of the *business transaction*) by corroboration

3.49
Person identity
the combination of *persona* information and *identifier* used by a *Person* in a *business transaction*

3.50
Person signature
a signature, i.e., a *name* representation, distinguishing mark or usual mark, which is created by and pertains to a *Person*

3.51
persona
the set of *data elements* and their values by which a *Person* wishes to be known and thus identified in a *business transaction*

3.52
persona Registration Schema (pRS)
the formal definition of the data fields contained in the specification of a *persona* of a *Person* and the allowable contents of those fields, including the rules for the assignment of identifiers. (This may also be referred to as a *persona* profile of a *Person*)

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

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

3.55
recognized Person identity (rPi)
the identity of a *Person*, i.e., *Person identity*, established to the extent necessary for a specific purpose in a *business transaction*

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

NOTE 1 This is a generic definition and is independent of any ontology, (e.g., those of "facts" versus "data" versus "information" versus "intelligence" versus "knowledge", etc.).

NOTE 2 Through the use of the term "information," all attributes of this term are inherited in this definition.

NOTE 3 This definition covers:

i) any form of recorded information, means of recording, and any medium on which information can be recorded; and,

ii) all types of recorded information including all data types, instructions or software, databases, etc.

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

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

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

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

[ISO/IEC 14662:1997 (4.1.2.1)]

3.61
scenario attribute
the formal specification of *information*, relevant to an *Open-edi scenario* as a whole, which is neither specific to *roles* nor to *Information Bundles*

[ISO/IEC 14662:1997 (4.1.2.3)]

3.62
seller
a *Person* who aims to hand over voluntarily or in response to a demand or request, 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)
a unit of *information* unambiguously defined in the context of the business goal of the *business transaction*

A SC may be atomic or composed of other SCs

[ISO/IEC 14662:1997 (4.1.2.2)]

3.64
standards
documented agreements containing technical specifications or other precise criteria to be used consistently as rules, guidelines, or definitions of characteristics, to ensure that materials, products, processes and services are fit for their purpose

NOTE This is the generic definition of “standards” of the ISO and IEC (and now found in the ISO/IEC JTC1 Directives, Part 1, Section 2.5:1998) {See also ISO/IEC Guide 2: 1996 (1.7)} <<http://www.iso.ch/infoe/intro.html>>]

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

NOTE It is understood that more than two *Persons* can at times be primary parties in a *business transaction*

3.66
unambiguous
the level of certainty and explicitness required in the completeness of the semantics of the *recorded information* interchanged appropriate to the goal of a *business transaction*

3.67
vendor
a *seller* on whom consumer protection requirements are applied as a set of *external constraints* on a *business transaction*

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

NOTE 2 It is recognized that external constraints on a seller of the nature of consumer protection may be peculiar to a specified jurisdiction.

4 Symbols and abbreviated terms

API	Application Program Interface
BOV	Business Operational View
CVD	Coded Value Domain
DMA	Decision Making Application
FDT	Formal Description Technique
FSV	Functional Service View
IB	Information Bundle
IPD	Information Processing Domain
IT	Information Technology System
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
PRS	Persona Registration Schema
RA	Registration Authority
RPi	Recognized Person identity
RS	Registration Scheme
SC	Semantic Component (in the context of Open-edi scenarios)

5 Characteristics of Open-edi

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) necessary to support the exchanges of commitments applicable to the parties involved in the business transaction.

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

— actions based upon following predefined rules;

— commitment of the parties involved;

— communications among parties are automated;

— parties control and maintain their states;

— parties act autonomously;

— multiple simultaneous transactions can be supported.

Each of these characteristics is now described in more detail.

5.1 Actions based upon 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 behavior(s) of the parties as seen by other parties engaging in Open-edi. Open-edi rules are applied to:

— content of information flows; and

— the order and behavior of information flows themselves.

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

5.2 Commitment of the parties involved

Open-edi is a class of electronic information flows which involves predefined types and states of commitments of the parties concerned. These involve tasks or functions to be carried out, obligations to be entered into, etc. In Open-edi, all commitments must 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.

5.3 Communications among parties are automated

Open-edi activities take place automatically among information systems. The actual exchange of information and compliance with rule sets agreed 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.

5.4 Parties control and maintain their states

An Open-edi Party must 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 behavior (or possible ranges of behavior). A state description is defined in terms of those characteristics which must be available to other parties for the purpose of enabling agreed Open-edi scenarios. States must therefore be stable, sustainable and persistent. When a party needs to change its state it must 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.

5.5 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 behavior conforming to agreed business processes.

5.6 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 5.1 through 5.6 serve as criteria which must 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 transacation[8)]

6.1 Introduction

6.1.1 Overview

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

— existing commercial frameworks;

— existing legal frameworks;

— those of a public policy/consumer requirements nature;

— sectorial (and cross-sectorial) requirements;

— localization and multilingualism;

— 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, but cannot be captured at a later stage in scenario definition.

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.

Fundamental concepts defined here include:

— the introduction of Person as the entity within an Open-edi Party that carries the legal responsibility for making a commitment;

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8) 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 Annex A}.

— the need to have processes which, together, deliver the commonly agreed business objectives;

— data exchange, which is the transfer of Information Bundles between and among parties;

— 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 are:

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

2) to serve as source for the “WHAT’s” of business requirements to be specified in Clause 7; “Rules for Scoping Open-edi scenarios;” and as part of the context for Clause 8, "Rules for specification of Open-edi scenario and their components". 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 introduces the Business Transaction Model in terms of its three components and two classes of constraints; “internal” and “external”. 6.2, 6.3, and 6.4 focus on the three component parts of the Business Transaction Model. 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 discussed in 6.6.

6.1.2 Standard based on rules and guidelines

This standard 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 in 0.2).

ISO states that:[9)]

> "standards are documented agreements containing technical specifications or other precise criteria to be used consistently as rules, guidelines, or definitions of characteristics, to ensure that materials, products, processes and services are fit for their purpose."[10)]

This standard 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. 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.[11)]

9) This is the generic definition of "standards" of the ISO and IEC (and now found in the ISO/IEC JTC1 Directives) <<http:www.iso.ch/infoe/intro.html>> for the English language version and <<http://www.iso.ch/infof.htm>> for the French language version.

10) One can interpret "agreement" in a variety of ways. The ISO/IEC Guide 2, 1996 (1.7) uses the term "consensus" which need not imply unanimity but rather “absence of sustained opposition to substantial issues…”

11) The working principle here 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 standard, 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[12]. 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.

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 standard 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 below in Figure 4.[13]

12) For example, “Guideline 5G2” equals the second guideline under Rule 5.

13) 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.

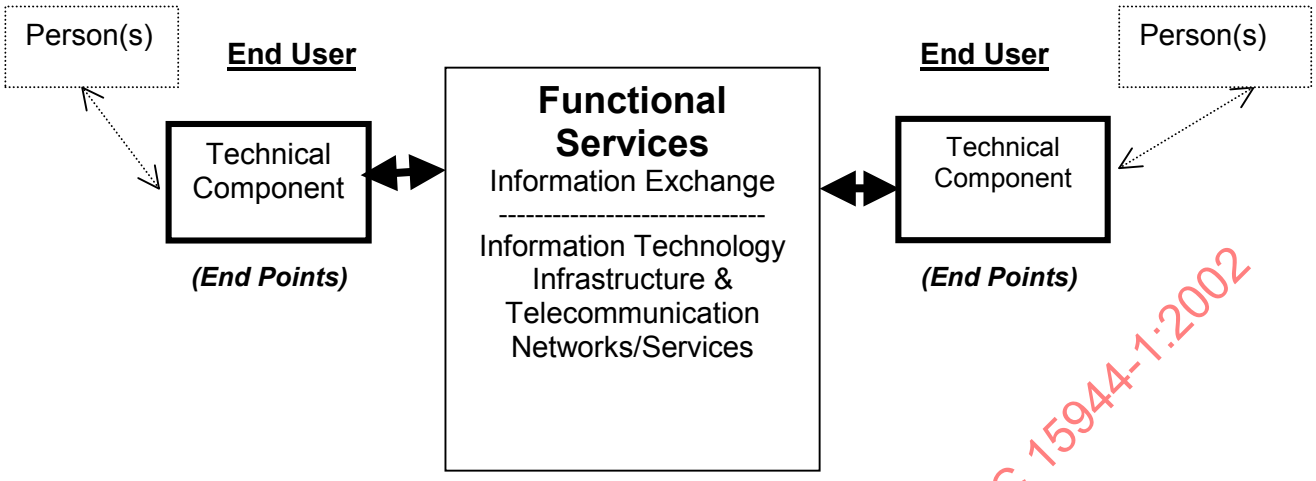

Figure 4 — Illustration of "Technical Components" as End Users of Information Exchange(s) in IT Standards

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 (1) commitment exchange; and, (2) "Persons" are the end users, (the "alpha" and "omega") in their roles as buyers and sellers of goods and services. The term commonly used in the context of business transactions is that of "party". In this standard 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 utilized in the establishment of commitments, formation of rights and obligations, and other commitment exchange. This is illustrated in Figure 5.

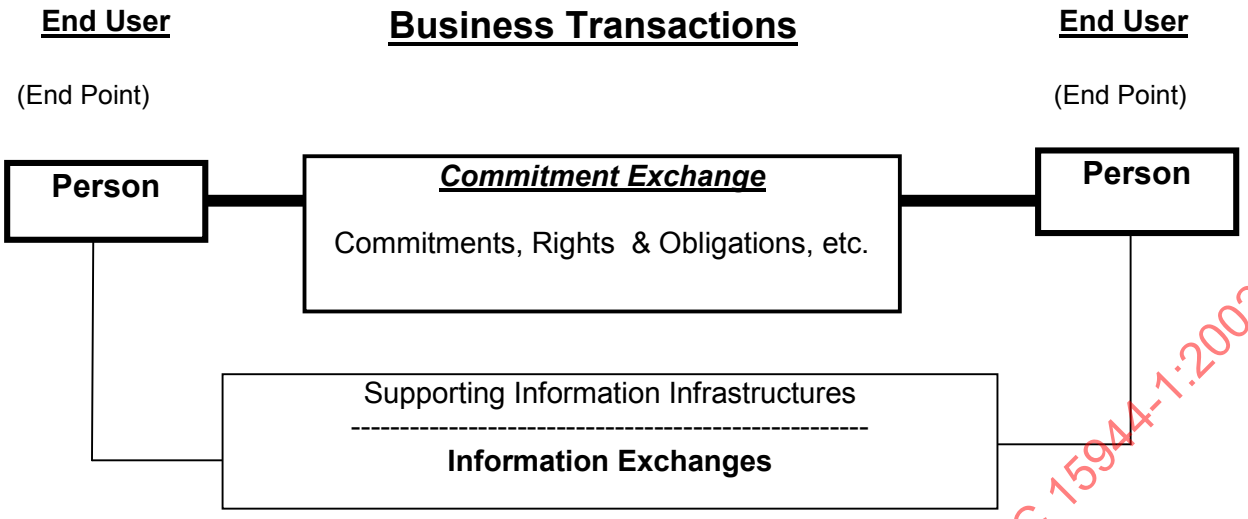

Figure 5 — Illustration of "Persons" as End Users in Commitment Exchange in Business Transactions Based on Existing Commercial and Legal Frameworks

In Open-edi, Person, the entity able to make commitments is represented in dematerialized form and engages in a business transaction via electronic data interchange.[14)]

"Person" is therefore defined as:

Person[15)]
an entity, a natural or legal person, recognized by law as having legal rights and duties, able to make commitment(s), assume and fulfil resulting obligation(s), and able to be held accountable for its action(s).

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

There are three broad categories or subtypes of Persons as players in Open-edi; the Person as "individual", the Person as "organization", and the Person as "public administration".

These three subtypes of Person reflect external constraints which often need to be taken into account. {See further below, 6.2 "Rules governing Person"}

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

1) individual <-> individual

2) individual <-> organization

14) The Open-edi Reference Model 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.

15) 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 "Rules governing the Person component", and Annex E "Business Transaction Model: Person Component".

3) individual <-> public administration

4) organization <-> organization

5) organization <-> public administration

6) public administration <-> public administration[16)]

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.[17)]

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 as:

commitment
the making or accepting of a right, obligation, liability or responsibility by a Person that is capable of enforcement in the jurisdiction 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 must 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 or previously defined common, re-useable components (scenarios and scenario components).

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 below provides an integrated view of the BOV and FSV perspectives of Persons as dematerialized entities in a Business Transaction.

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16) At present, e-business involving organization to organization is often referred to as "B2B" and that involving organization and individuals as consumers as "B2C".

17) At the time that the Open-edi Reference Model was developed, 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 below 6.2 "Rules Governing the Person Component".

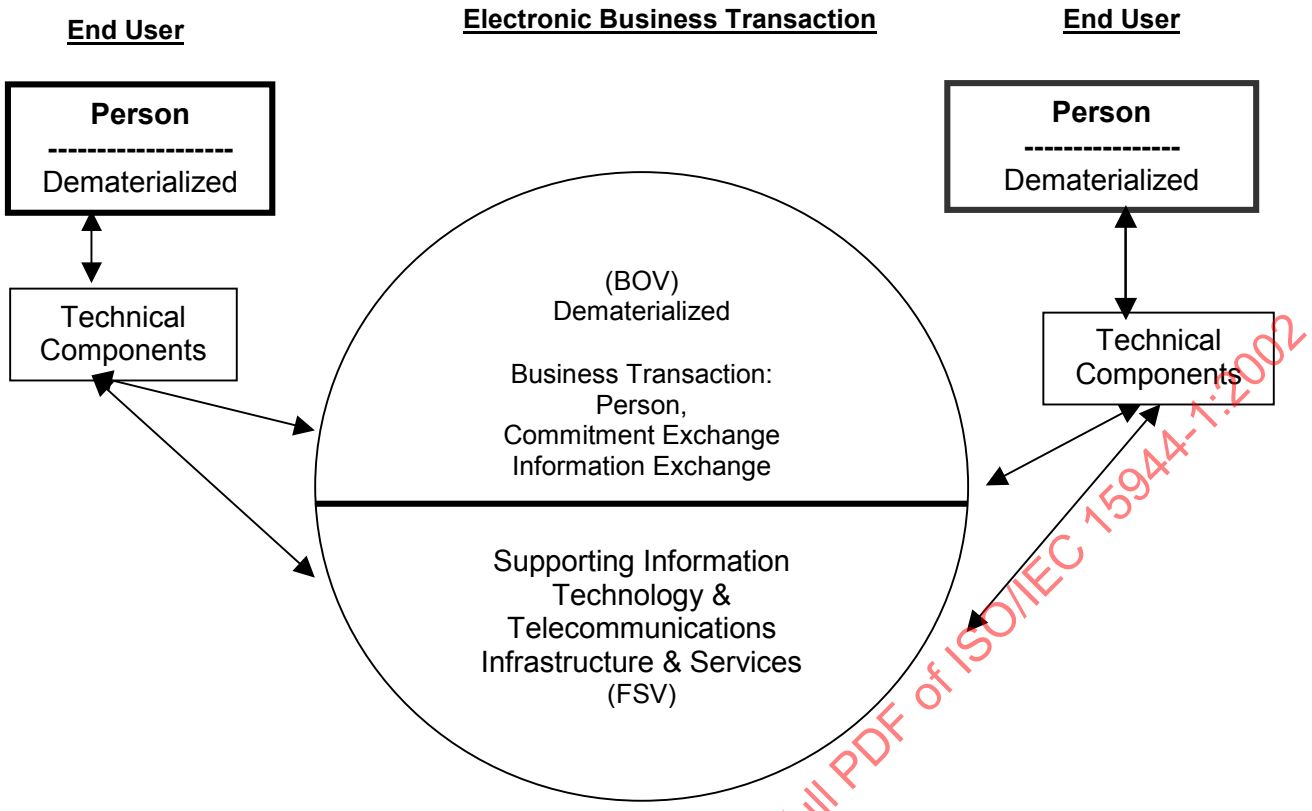

Figure 6 — Integrated View — Commercial/Legal and IT Perspectives of Persons as "End Users" in an Electronic Business Transaction through Technical Components

6.1.4 Business transaction: unambiguous identification of entities[18)]

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). This standard 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:

— "unambiguous"; and,

— "identification".

18) Annex C "Unambiguous Identification of Entities in a Business Transaction" provides the informative and explanatory text for the rules and definitions in 6.1.4.

In global business transactions common business practices and standards exist for the identification of entities comprising a business transaction including Persons[19].

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 as:

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

This definition of "unambiguous":

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

— is a common requirement of all industry sectors;

— is medium neutral, i.e., applies irrespective of the combination of IT technologies or platforms utilized; and,

— applies to all three components of the business transaction, 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 must have been established before authentication can take place.

19) 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 D "Existing Standards for the Identification of Persons (Organizations and Individuals) in Business Transactions".

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[20)]**.**

The definition for "identification" is:

identification:
a rule-based process, explicitly stated, involving the use of one or more attributes or data elements, whose value (or combination of values) are used to identify uniquely the occurrence 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 as:

identifier (business transaction)
an unambiguous, unique and a linguistically neutral value resulting from the application of a rule-based identification process. Identifiers must be unique within the identification scheme of the issuing authority

{See further, Annex C.5}

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:

name
Designation of an object by a linguistic expression

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

{See further Annex C.6 "Identification versus Designation (or "Identifier" versus "Names")}

20) 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, Clause C.4.}

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. 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 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 below.

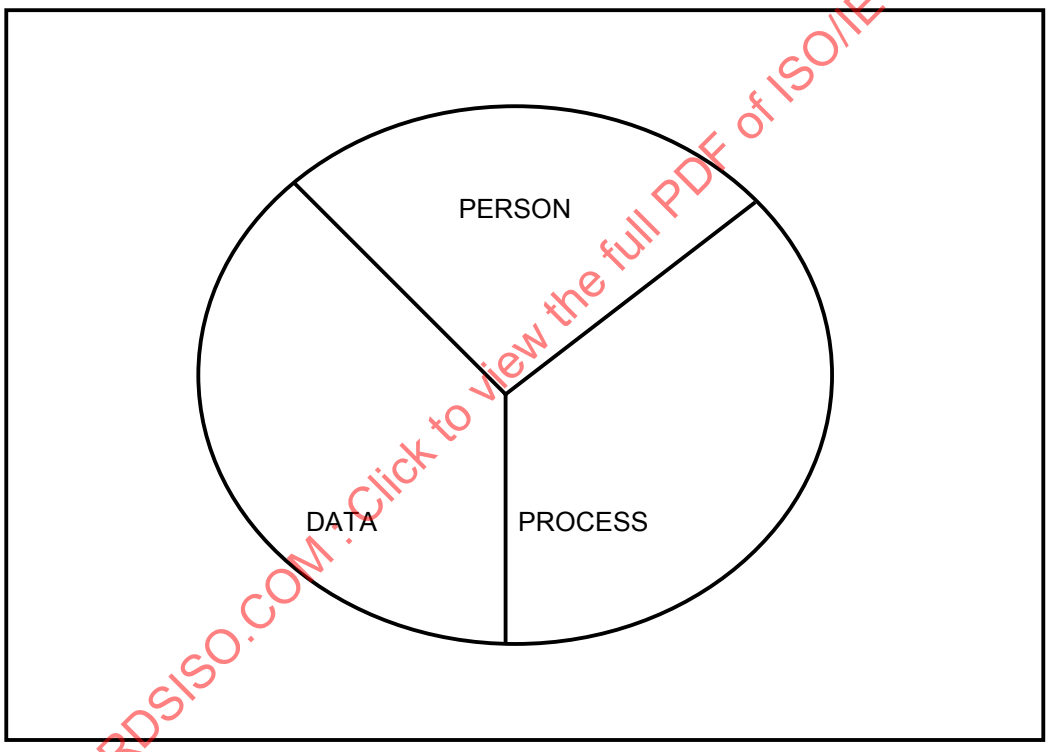

Figure 7 — Business Transaction Model — Fundamental Elements (Graphic Illustration)

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 as:

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

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

NOTE 2 Constraints to be registered for implementation in Open-edi must have unique and unambiguous identifiers

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 below, 6.2.5 "Person and delegation to 'agent' and/or 'third party'".)

The Open-edi reference model identified two basic classes of constraints, namely "internal constraints" and "external constraints". They are defined as follows:

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

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

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

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

NOTE 2 Other sources of external constraints include those of a sectorial nature, those which pertain to a particular jurisdiction or a mutually agreed to common business conventions, (e.g., INCOTERMS, exchanges, etc.).

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

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

EXAMPLE 1 only a qualified medical doctor may issue a prescription for a controlled drug;

EXAMPLE 2 only an accredited share dealer may place transactions on the New York Stock Exchange;

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

NOTE 5 Where the Information Bundles (IBs), including their Semantic Components (SCs) of a business transaction form the whole of a business transaction, (e.g., for legal or audit purposes), all constraints must be recorded. (For example, there may be a legal or audit requirement to maintain the complete set of recorded information pertaining to a business transaction (the Information Bundles exchanged), as a "record".)

NOTE 6 A minimum external constraint that is often applicable to a business transaction requires one to differentiate whether the Person, i.e., 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".)

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 must be stated at the time of instantiation but need not exist at the time of registration. {See further, Clause 9 below and Annex I}.

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 or services delivered do not comprise behavior of a criminal nature.[21)] Whilst laws and regulations exist within and among jurisdictions and are the primary source of "external constraints" on Business Transactions, categorization and specification of sub-classes of external constraints is outside the scope of this standard.

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.

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, financial/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 must be identified and specified where applicable, as part of specification of scenarios and scenario components.[22)] This allows one to build scenarios and scenario components for referencing, registering and reuse of sets of sectorial external constraints such as “customs clearance”, “transport of dangerous goods”[23)], etc. These two basic classes of constraints on business transactions are illustrated below in Figure 8: Business Transaction Model: Classes of Constraints.

21) ISO/IEC JTC1/SC32 is developing a standard to address the issue of jurisdictions as it impacts specification of external constraints on business transactions (ISO/IEC 18038 - *Information technology - Identification and Mapping of Various Categories of Jurisdictional Domains)*. This standard is directed at being able to identify and reference laws and regulations impacting scenarios and scenario components.

22) 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 sectorial areas are already known. Use of this standard (and related standards) will facilitate the transformation of these external constraints (business rules) into specified, registered and re-useable scenarios and scenario components.

23) Note: There are also requirements for establishing common rules for interchanges between as well as among sectors. These rules are normally imposed by a particular sector on the others. For example, the banking sector may 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.).

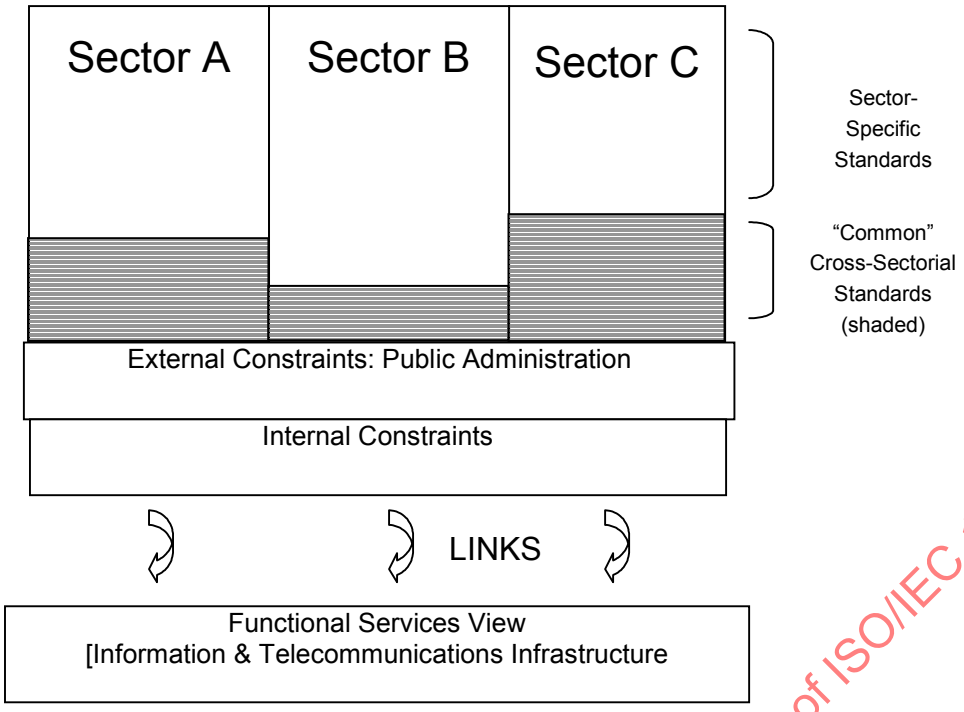

Figure 8 — Business Transaction Model: Classes of Constraints

6.2 Rules governing person[24)]

6.2.1 Introduction

The purpose of this rule is:

1) to incorporate and support a key aspect of the BOV, i.e., the making of business decisions and commitments;

2) to capture the unique attributes of Person as the only entity in business transactions able to make commitments; and,

3) to capture the business operational requirements from both commercial and legal perspectives.

In addition, some common generic aspects of Person with respect to minimum external constraints such as "individual," "organization," and "public administration" are introduced.

6.2.2 Person, personae, identification and person signature[25)]

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.).

24) Annex E "Business Transaction Model: Person" provides the informative and explanatory text for 6.2.2.

25) Informative and explanatory text on identity and authenticity, "Person", "personae", "Registration Schema", "Registration Authority", etc., are found in relevant clauses of Annex E.

Rule 11:

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

A "Person" is defined as:

Person
an entity, a natural or legal person, recognized by law as having legal rights and duties, able to make commitment(s), assume and fulfil resulting obligation(s), and able of being held accountable for its action(s)

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

NOTE 2 Person is capitalized to indicate that it is being utilized as formally defined in the standards and to differentiate it from its day-to-day use.

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

The three unique properties of "Person" already identified include:

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

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

3) the ability to be able to be held accountable for actions, behaviors, decisions, etc.

From an (electronic) business transaction perspective all three properties must 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 as:

persona
the set of data elements and their values by which a *Person* wishes or has been designated to be known and thus identified in a *business transaction*

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

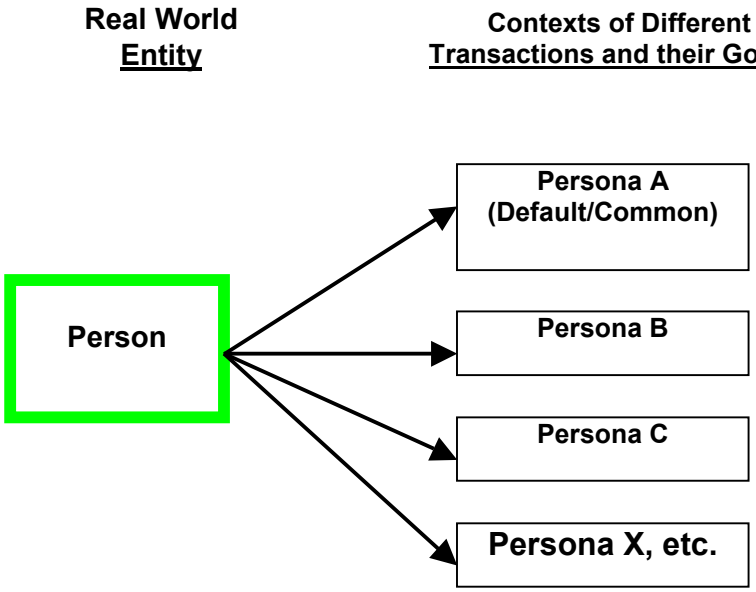

Figure 9 — Links of a Person to its Persona(e) in the Context of Different Business Transactions and their Governing Rules

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 business transaction.

Each business transaction will consider the persona used on its own merits. It is not certain that every 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 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. An RA may use the ID of another 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.).

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 geo-political jurisdiction 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 jurisdiction. This is especially true for names for public sector organizations in jurisdictions 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 utilize 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 utilized to capture unique identifiers.)

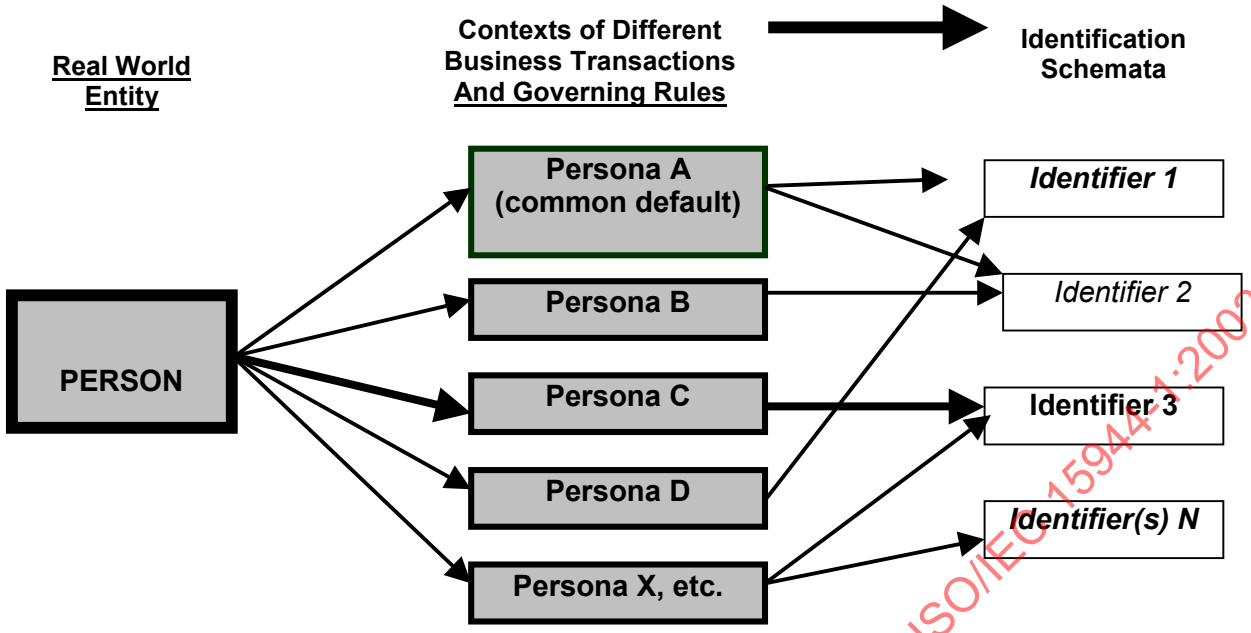

Figure 10 — Illustration of Links of a Person to Persona(e) to Identifier(s) issued through Identification Schemata applicable to the contexts of different business transactions

Rule 16:

In present day business transactions, a Person can and does use different signatures and that must be assumed to continue to be the case.

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.

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" and is defined as follows:

Person signature is defined as:

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

Guideline 21G1:

Parties making commitments in a business transaction are Persons. However, as stated in 6.2.5 below 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 outside the scope of this standard.

The interworking of these 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. (In Figure 11, different fonts and representations are used for: “Person signature” to recognize the wide variety in forms and information technologies utilized to capture “Person signatures.”)

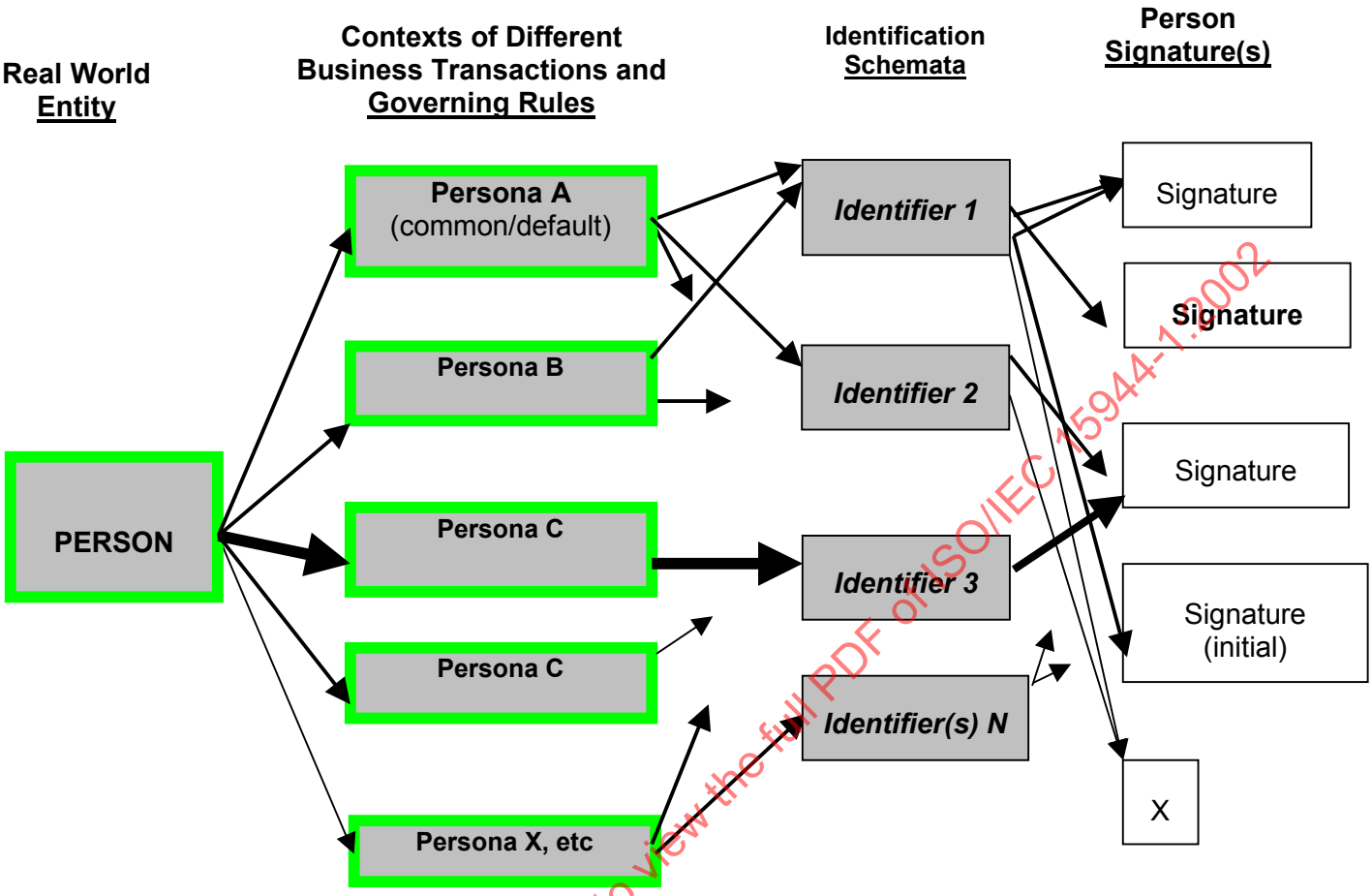

Figure 11 — Illustration of Relationships of Links of a Person to (its) Persona(e) to Identification Schemas and resulting Identifiers to associated Person Signatures — in the Context of Different Business Transactions and Governing Rules

6.2.3 Person - identity and authentication

As determined in 6.2.2 above, 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 as:

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

Rule 22:

The Person identity, i.e., the Person 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.

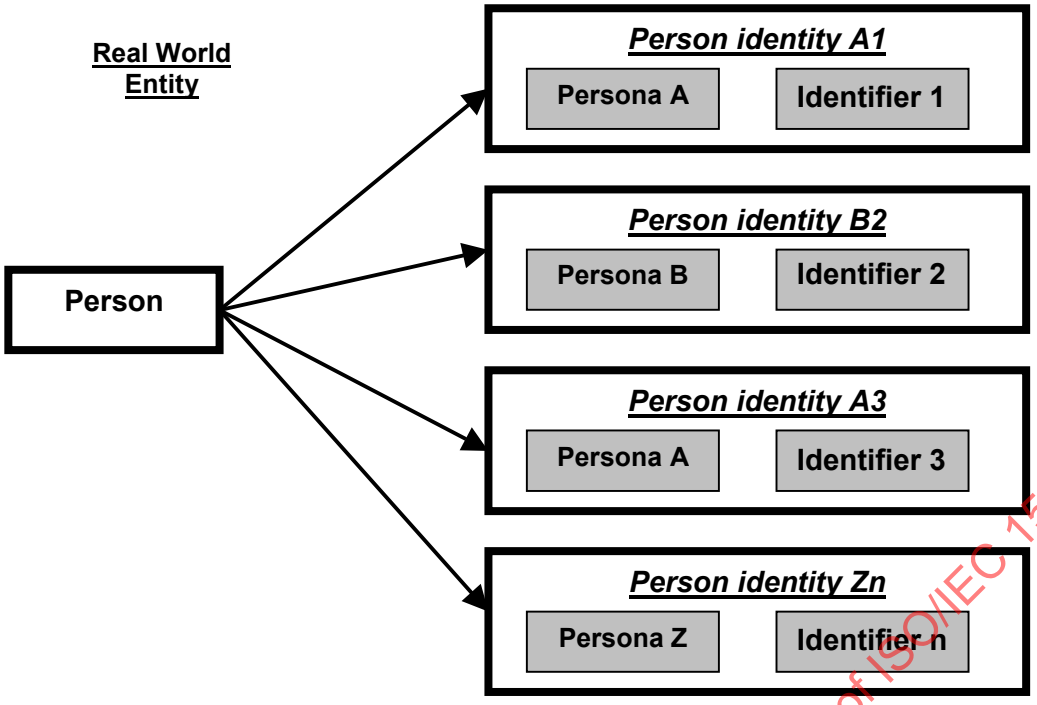

Figure 12 — Illustration of Range of Links between Person and Person Identity(ies)

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/utilize a pre-specified Person identity (e.g. a Blue Cross 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."[26)]

Recognized Person identity" is defined as:

recognized Person identity (rPi)
the identity of a *Person*, i.e. as a *Person identity*, established to the extent necessary for a specific purpose in a *business transaction*

Rule 23:

In a business transaction, a recognized Person identity is established by either:

i) mutual recognition and acceptance; or

ii) by referring to an identifier in a Registration Schema of a Registration Authority.

26) 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 6325, ISO/IEC 7501 or ISO/IEC 7812 - see further Annex D), or the set of data elements required may be more extensive but must still be finite and prescribed. These and similar specifications are outside the scope of this standard and are expected to be registered as "re-useable" Information Bundles in accordance with ISO/IEC 15944-2.

This is illustrated in Figure13.

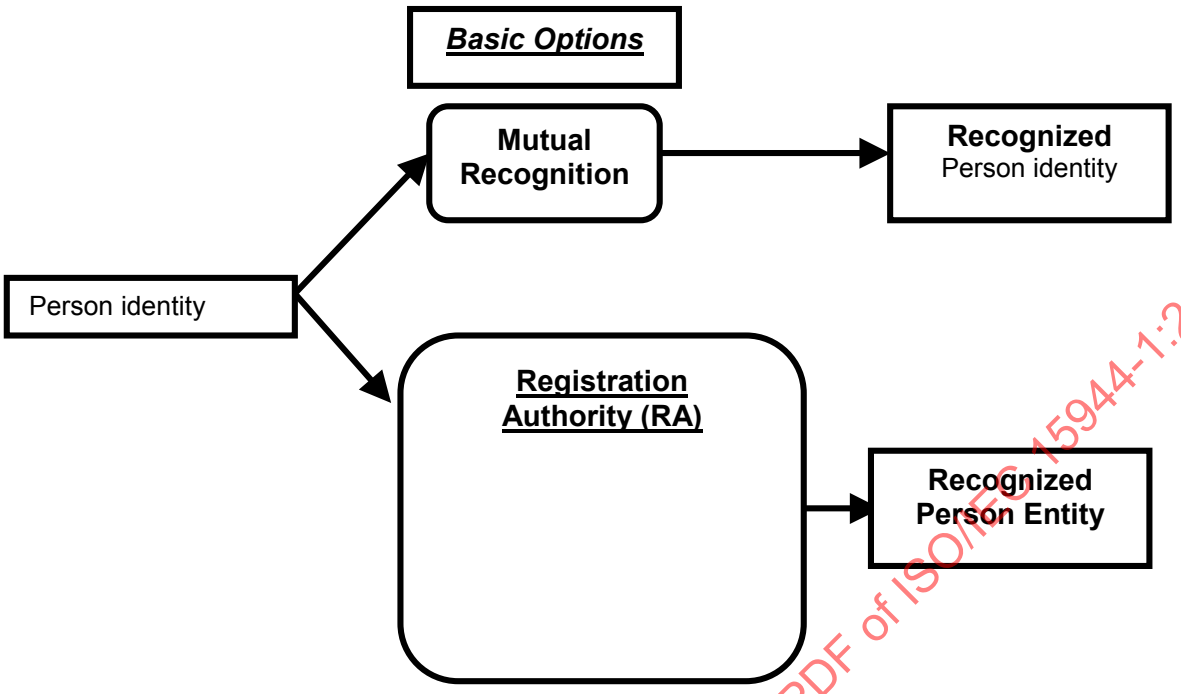

Figure 13 — Illustration of Two Basic Options for Establishment of a Recognized Person Identity based on a Person identity for Use in a Business Transaction

Guideline 23G1:

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

In this standard, persona Registration Schema is defined as:

persona Registration Schema (pRS)
the formal definition of both the data fields contained in the specification of a persona profile of a *Person* and the allowable contents of those fields, including the rules for the assignment of identifiers. (This may also be referred to as a profile of a persona.)

In this standard, Registration Authority is defined as:

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

Rule 24:

A Registration Authority for Persons shall have explicitly stated rules for transforming a Person identity into a recognized Person identity 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 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 as:

Person authentication
the provision of the assurance of a *recognized Person identity* (sufficient for the purpose of *the business transaction*) by corroboration.

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

— a Person identity must have been established; and,

— the Person identity must be recognized, i.e., a recognized Person identity must exist.

Rule 25:

In a business transaction, Person authentication is established by either:

i) mutual recognition and acceptance; or,

ii) 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" and "seller".

They are defined as:

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

seller
a *Person* who aims to hand over voluntarily or in response to a demand or request, 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.

NOTE In these two definitions the phrase “providing an acceptable equivalent value” recognizes that this is for the “buyer” and the “seller” to mutually agree to. A mutually accepted value can be of a monetary nature and defined as such, 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 standard, "agent" is defined as:

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

NOTE Excluded here are agents as "automata" (or robots, bobots, etc.) In ISO/IEC 14662, "automata" are recognized and provided for but as part of the Functional Services View (FSV) where they are defined as an "Information Processing Domain (IPD)".

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.

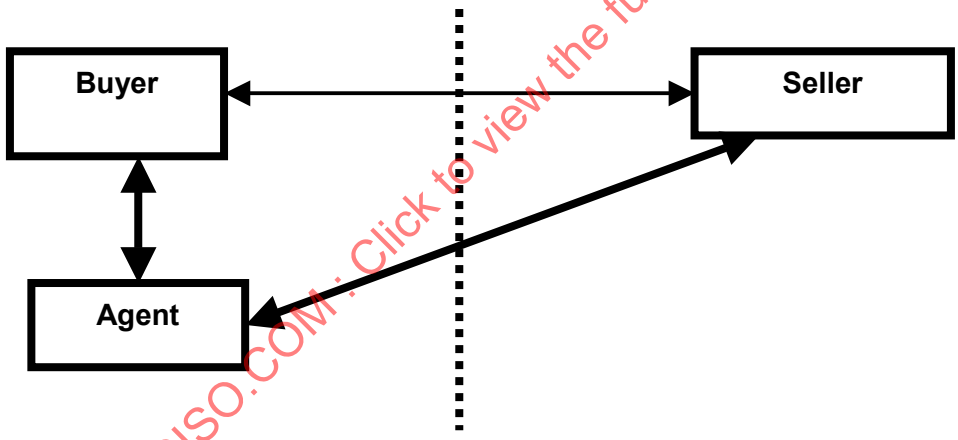

Figure 14 — Illustration of Buyer Seller Interaction with Buyer Using an Agent

Rule 30:

The ability to delegate a role to an agent shall be explicitly stated. If constraints must 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 between two Persons. Other Persons, i.e., third parties, may fulfil specified role(s) or functions(s) on mutual agreement or as a result of external constraints.

The generic definition for "third party" is:

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

NOTE It is understood that more than two Persons can at times be primary parties in a business transaction.

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.

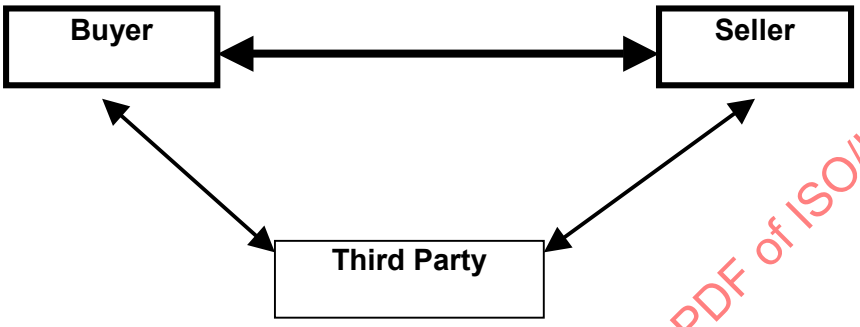

Figure 15 — Illustration of Buyer and Seller with a Third Party

6.2.6 Person and external constraints: the "regulator"

Rule 33:

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

The introduction of external constraints on the behavior 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 behavior and associated business transactions of buyers and sellers are deemed to be "regulators". "Regulator" is defined as:

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

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 types of persons, namely, "natural persons", and "legal persons" (a.k.a. "artificial persons").

Rule 34

From a minimal external constraints perspective, the three basic subtypes of Persons as role players in any business scenario are:

1) individual,

2) organization, and

3) public administration.

Consequently, this standard uses the terms "individual", “organization” and “public administration” as the three basic subtypes of Persons as role players in any business transaction involving minimum external constraints. Figure 16 illustrates this perspective.

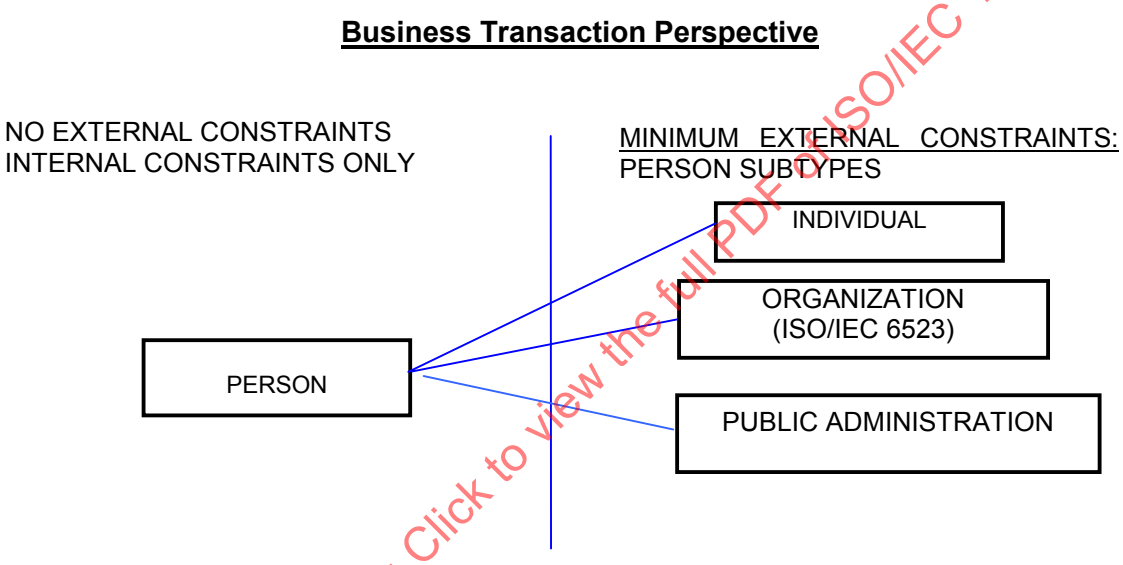

Figure 16 — Integrated Business Transaction Perspective of “Person”: Minimum External Constraints

It is understood that:

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

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

Individual is defined as:

individual
a *Person* who is a human being, i.e., a natural person, who acts as a distinct indivisible entity or is considered as such, acting on its own behalf

NOTE 1 The use of the term "Person" in the definition of "individual" means that an "individual" inherits all the properties and behaviors of "Person".

NOTE 2 The definition of "individual" is neutral towards and independent of:

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

— any qualifications which a jurisdiction 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.).

NOTE 3 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.” See further Annex E, E.3.1

"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 jurisdictions.

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

Rule 36:

An "organization", unlike an "individual", can have more than one “organization part” identified for information exchange.

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

Rule 37:

In a business transaction, an organization Person may make commitments for an organization or organization part.

An "organization Person" is defined as:

organization Person
an organization part which has the properties of a *Person* and thus is able to make commitments on behalf of that organization

NOTE 1 an organization can have one or more organization Persons.

NOTE 2 an organization Person is deemed to represent and act on behalf of the organization and to do so in a specified capacity.

NOTE 3 an organization Person can be a “natural person” such as an employee or officer of the organization.

NOTE 4 an organization Person can be a “legal person”, i.e., another organization.”

Figure 17 illustrates the linkages among “organization”, “organization part” and “organization Person” and does so in the context of commitment exchange versus information exchange.

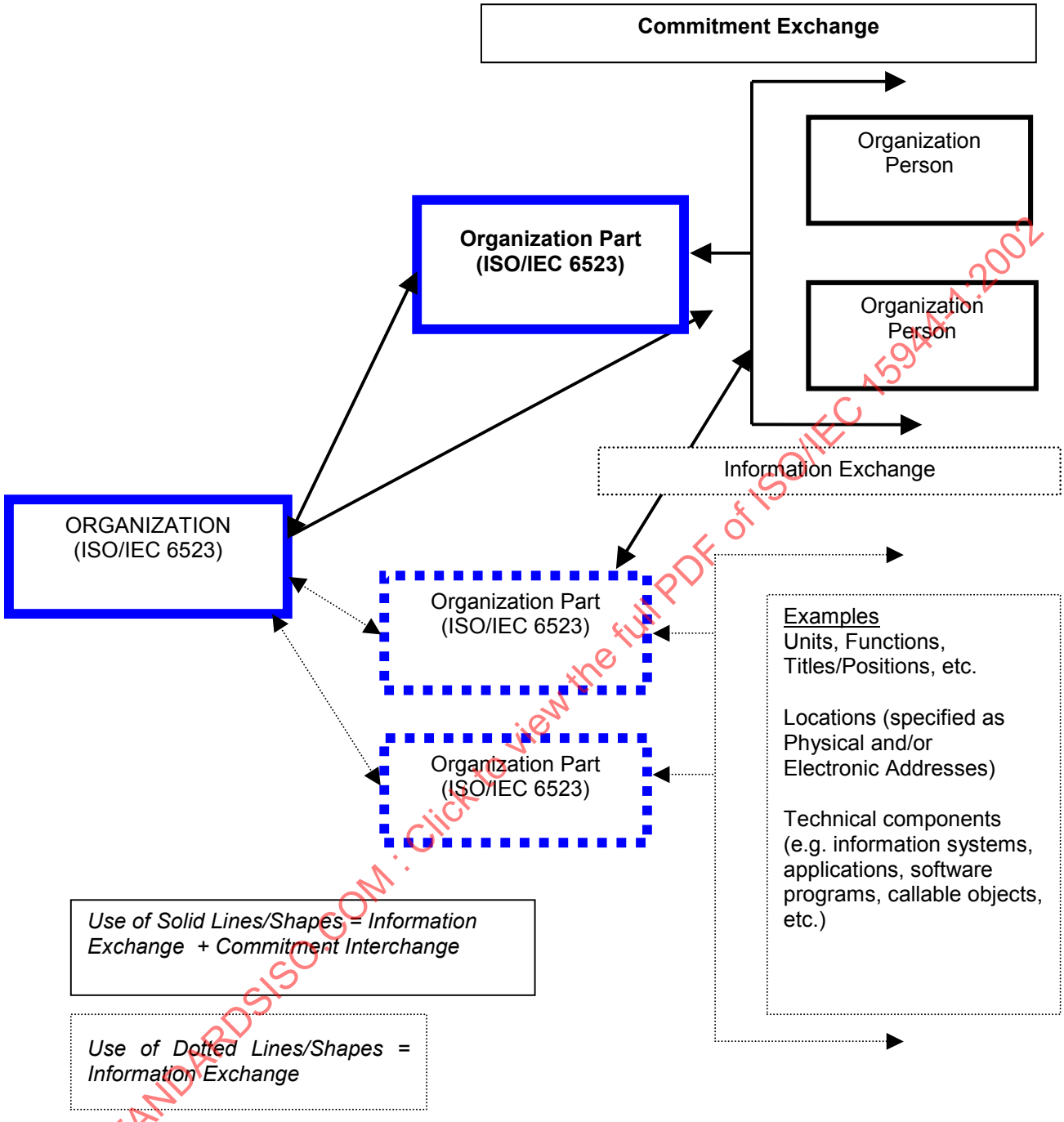

Figure 17 — Illustration of Commitment Exchange versus Information Exchange for Organization, Organization Part(s) and Organization Person(s)

The third subtype of Person as party in a business transaction is that of "public administration". A "public administration" is a Person who is deemed to have all the attributes of an organization plus at least one unique additional attribute, from the perspective of a business transaction. A public administration has the attribute that in addition to being able to play the roles of an organization, i.e., "buyer" and "seller", it can also act on behalf of a "regulator". This role of acting on behalf of a "regulator" is unique to "public administration" and is independent of whether the latter decides to delegate or outsource such a function, i.e., to an "agent" acting on its behalf. Increasingly products and services provided by public administrations on behalf of a regulator are being "outsourced" to organizations (e.g., private sector for-profit or not for profit organizations which perform the role of "public administration").

The definition of "public administration" is:

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

Not all Persons as parties can perform all three roles especially the role of "regulator." For the Business Transaction Model with respect to the above noted minimum external constraints, the permitted intersects of the Persons as players and of the three key roles is illustrated in Figure 18.

Persons	Roles in (Electronic) Business Transaction		
	Buyer	**Seller**	**Regulator**
Person (no external constraints)	YES	YES	Not applicable
Person – Individual	YES	NO (YES)[27)]	NO
Person – Organization	YES	YES	NO(YES)
Person – Public Administration	YES	YES	YES

Figure 18 — Business Transaction Model: - Basic Players and Roles - Public Administration Constraints

6.2.8 Person and external constraints: consumer and vendor

Another minimum external constraint that needs to be taken into account in business transactions is that commonly known as "Consumer Protection". This sections focuses on minimal external constraints of this nature but does so in a very limited manner. It is outside the scope of this standard to address external constraints on a business transaction of the nature of "Consumer Protection". The sole purpose of this clause is to ensure that when one uses this standard to model business transactions or parts of business transactions as scenarios and scenario components, one does note under "external constraints" whether or not the scenario and/or the scenario component supports external constraints of a consumer protection nature. See further, Annex E, p. E-45 and its footnote #48.

Rule 38

From a minimal external constraints perspective, a common set of constraints on a business transaction where the buyer is an individual are those of a consumer protection nature.

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27) From an IT standards perspective, (e.g., ISO/IEC 6523), an unincorporated activity providing a good, service, and/or right is deemed to be an organization. However, there may be legal requirements in a jurisdiction, where a "natural person" in the role of a seller is deemed to be an "individual" and not an organization. It is up to such jurisdictions to resolve how such an approach is harmonized with Privacy/Data Protection requirements.

A "consumer" is defined as:

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

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

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

NOTE 3 It is recognized that *external constraints* on a *buyer* of the nature of consumer protection may be peculiar to a specified jurisdiction.

Further, a "vendor" is defined as:

vendor
a *seller* on whom consumer protection requirements are applied as a set of *external constraints* on a *business transaction*

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

NOTE 2 It is recognized that external constraints on a seller of the nature of consumer protection may be peculiar to a specified jurisdiction.

6.3 Rules governing the process component[28)]

6.3.1 Introduction

For the purposes of this standard and in the context of a business transaction, a "process" is defined as:

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

Rule 39:

Conceptually a business transaction can be considered to be constructed from a set of fundamental activities. They are planning, identification, negotiation, actualization and post-actualization.

Open-edi based business transactions can be viewed from a process perspective as consisting of five distinct activities. This perspective on the process component is linked to the making of business decisions and commitments in a business transaction. By providing this common view to business transactions, one provides a useful single frame of reference for discussion of many of the diverse issues, as well putting these issues in a context. For example, in "Identification", this may be the point to introduce the need for authentication whereas the area of "Negotiation" or "actualization" may be the point to pursue the issue of non repudiation using digital signatures.

These five basic sets of activities integrate existing well-known and widely used business models which take the perspective of the seller, the perspective of buyer and that of a combined buyer-seller view as well as that of contract formation. Also incorporated in this standard is the approach of "early loose couplings" and "late bindings". The five phases capture common external constraints of the nature of privacy/data protection, consumer protection and similar legal/regulatory requirements as external constraints on business transactions. {See further above 6.1.6}.

28) Annex F “Business Transaction Model: Process Component” provides informative and explanatory text for 6.3.

This division into five phases facilitates the identification of, and mapping to, existing standards which can be used in support of Open-edi based implementations. It therefore not only facilitates specification and re-use of scenarios and scenario components but reduces their cost of construction by maximizing (re-)use of existing standards and related tools.

Rule 40:

The five fundamental activities may take place in any order.

For example, data that is related to post-actualization aspects, (e.g., warranties, consumer protection requirements, etc.), may well be made available as part of the planning phase or the negotiation phase. Or the choices in methods of payments to be decided upon as part of the negotiation phase may be made known as part of the Planning information.

Rule 41:

A Person may terminate a business transaction by any agreed method of conclusion.

Agreed methods may include deciding not to respond, failing to respond within an agreed time period, not sending appropriate information for the next possible entries to the scenario, arriving at a stated termination point in the scenario. A common example here is that of one of the parties deciding not to respond at a specific step during a business process, (e.g., a time out).

Rule 42:

The five fundamental sets of activities may be completed in a single continuous interactive dialogue or through multiple sets of interactions among buyer and seller and possibly involve agents or third parties as well.

6.3.2 Planning

In the planning phase, both the buyer and seller are engaged in a process to decide what action to take for acquiring or selling a good, service, and/or right.

From a seller's perspective, the planning phase relates to all those actions or events whereby data pertaining to the availability of a good, service, and/or right is made available. It is up to the seller to decide how much data to make available and at what level of granularity without having any information on the requirements of a specific buyer. Common examples here include advertising, market research, promotions, provision of catalogues, direct marketing, product branding and positioning of a good, service, and/or right, auctions, terms and conditions of trade, warranties, etc.

Minimum external constraints which often are included in the planning process include the provision of Information Bundles in support of privacy/data protection, consumer protection, etc. requirements.

From a buyer's perspective, the planning phase covers all those actions or events whereby:

1) the potential buyer searches among potential suppliers of a good, service, and/or right based on information made available by these suppliers of goods and services, i.e., as potential sellers;

2) the potential buyer requests information, product/service literature, etc., from potential sellers; and/or,

3) the potential buyer makes a more explicit statement of needs in the form of a request for proposals (RFP), for quotation (RFQ), price quotes, etc. (It is becoming increasingly common and often required for public sector organization(s) to publicly post (detailed) specifications of the requirements pertaining to a planned purchase of a good, service, and/or right.)

6.3.3 Identification

The identification phase refers to all those actions or events whereby data is interchanged among potential buyers and sellers in order to establish a one-to-one linkage, i.e., in the planning phase, a potential buyer will have identified a possible seller(s) or a potential seller(s) will have identified a buyer with a stated request.

The identification phase also includes the exchanges of Information Bundles required to progress from the planning phase to the negotiation phase as is mutually acceptable. A key result of the Identification phase is the transformation from a loose coupling among potential buyers and sellers to an early one-to-one binding required, and mutually agreed to, for the negotiation phase to begin.

From a seller's perspective, there may well be limits on the nature and level of detailed of data a seller is willing to provide on a particular good, service, and/or right, i.e., in the planning phase, without identification of the potential buyer.

From a buyer's perspective, there may well be requirements for more detailed data on the prospective seller, especially where the seller is represented to the buyer in electronic form.

A key aspect of the identification phase is to ensure that “minimum external constraints: Public Administration” of the nature of privacy/data protection, consumer protection, etc. can be complied with if required. (An example of the first is an “immediate settlement” (see below 6.6.3.2). An example of the second is the use of a real estate agent (See below 6.6.3.3). This is independent of whether these external constraints are of a regulatory or self-regulatory nature.) This requires the seller to determine whether the Person as potential buyer is an "individual" or an "organization" (a minimum external constraint) or can simply be considered a Person (a no external constraints perspective, i.e., internal constraints only).[29)]

6.3.4 Negotiation

The negotiation phase covers all those actions and events involving the exchange of Information Bundles following the Identification phase, i.e., a potential buyer and seller having (1) identified the nature of good(s) etc. to be provided; and, (2) identified each other at the level of certainty, i.e., unambiguity, necessary for their mutual agreement. The process of negotiation is directed at achieving an explicit, mutually understood, and agreed upon goal of a business transaction and associated terms and conditions. This may include such things as the detailed specification of the good, service, and/or right, quantity, pricing, after sales servicing, delivery requirements, financing, use of agents and/or third parties, etc. This is the key to the entire process because it is during the negotiation phase that the direction of the remaining activities in a business transaction will be established.

The end of the negotiation phase is achieved when the following conditions are met.

1) The particular good, service, and/or right to be provided by the seller to the buyer has been specified at a level of detail, i.e., granularity, mutually accepted by both buyer and seller.

2) The buyer and seller have unambiguously identified each other to their mutual satisfaction.

3) The buyer and seller have agreed to whether or not agents or third parties are to be involved in the business transaction and, if so, have explicitly stated the specified roles or function these persons are to fulfil.

4) The buyer and seller have agreed to terms and conditions pertaining to:

   i) the acceptable equivalent value which the buyer is to provide to the seller in exchange for the latter providing the good, service, and/or right.

29) For the purposes of this standard, and in conformance with ISO/IEC 6523-1, unincorporated Persons who provide a good, service, and/or right, i.e., natural persons, who as role players are "sellers" in a business transaction are deemed to be an “organization” unless their legislation allows otherwise.

If an "acceptable equivalent value" is of a monetary nature, this involves agreement on terms of payment, method of payment, financing, etc.

ii) Transfer of property rights, (e.g., from full and complete ownership to a (permanent or short term) licence to use, (e.g., as in relation to intellectual property rights).

iii) Post-actualization requirements {see below 6.3.6}

5) Contract formation is deemed to have been concluded. Formation of contract can range from:

i) the seller providing an explicit summary of all the pertinent information exchanged as Information Bundles during the planning, identification and negotiation phases for sign-off by the buyer; to

ii) the totality of the exchanges of Information Bundles among seller and buyer (and/or participating agents and/or third parties) during the planning, identification and negotiation phases resulting in the formation of an implicit contract.

6.3.5 Actualization[30)]

The actualization phase includes all activities or events necessary for the execution of the results of the negotiation for an actual business transaction. Normally the seller produces or assembles the goods, starts providing the services, prepares and completes the delivery of good, service, and/or right, etc., to the buyer as agreed according to the terms and conditions agreed upon at the termination of the negotiation phase.

The buyer begins the transfer of acceptable equivalent value, usually in money, to the seller providing the good, service, and/or right according to the agreement. Where transfers of value of a monetary nature are involved, these can range from pre-paid (P.P.D) to cash-on-delivery (C.O.D), (as found in common international commercial terms a.k.a., Incoterms), or for pre-paid deposit or no deposit, to staggered payments, financing, to payment at a mutually agreed to date after delivery of acceptance by the buyer of the product/service, (e.g., "no payment/no interest for 90 days").

In addition, it is understood that in transport of a good or a service from a seller to a buyer and the transfer of equivalent acceptable value from buyer to seller, there are associated transfers of property rights. It is assumed that unless special conditions apply, where and how such transfer of property rights are to be transferred is governed by international accepted commercial terms, i.e., Incoterms, (e.g., Free-Along Side (FAS), or Free-On-Board (FOB), etc.

6.3.6 Post-actualization

The post-actualization phase includes all of the activities or events and associated exchanges of Information Bundles that occur between the buyer and the seller after the agreed upon good, service, and/or right is deemed to have been delivered.

These can be activities ranging from warranty coverage, service after sales, post-sales financing such as monthly payments or other financial arrangements, consumer complaint handling and redress to general post-actualization relationships between buyer and seller[31)] including those arising from minimum external constraints such as those created by privacy/data protection, consumer protection, etc.

30) It is assumed that common business practices are followed and that other requirements such as insurance are dealt with by the relevant Persons.

31) The post-actualization phase could include ongoing communications such as product recall or fixes of defects, availability of product replacements, (e.g., new models), or associated product availability, available changes in the services provided (or add-ons), available changes in the terms and conditions pertaining to the good, service, and/or right provided, (e.g., prices/rates, packaging or bundling of services, extensions of warranties, or time period covered, records retention and disposal, etc.).

6.4 Rules governing the data component[32)]

6.4.1 Recorded information

The context of this subclause on “Rules Governing the data component" is that of data in an electronic business transaction. The two key attributes of Open-edi here are that it is: (1) "business transaction"-based; and, (2) takes place through "electronic data interchange". These terms are defined in ISO/IEC 14662:1997(E) "Information Technologies - Open-edi Reference Model".

The definition of business transaction[33)] is:

— generic, independent of whether it is executed through electronic or non-electronic means;

— sector independent, it applies within and among sectors, (e.g., public/private, industrial, geographic, etc.); and,

— independent of whether the business transaction pertains to "for profit" or "not for profit" based exchanges of values.

The term information has already been defined.[34)] It is medium neutral. However, this definition does not require “information” to be recorded whereas Open-edi has this requirement.

Rule 43:

In a business transaction, information is either recorded or it is not.

Information exists in two states:

1) that which is "known" to a natural person, but is not yet recorded in any form; or,

2) that which is recorded on some medium.

Both states are acceptable in the present legal and commercial frameworks and business practices where business transactions may or may not include recorded information. In everyday commerce, a contractual agreement, need not involve any recorded information, i.e., can be a verbal contract, (e.g., based on a handshake).

Rule 44:

Electronic business transactions require "recorded information".

Unlike business transactions in general, electronic business transactions are based on and require "recorded information" which is defined as:

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

NOTE 1 This is a generic definition and is independent of any ontology, e.g., those of "facts" versus *"data" versus "information" versus "intelligence" versus "knowledge", etc.).*

NOTE 2 Through the use of the term "information", all attributes of this term are inherited in this definition.

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32) Annex G “Business Transaction Model: Data Component” provides the informative and explanatory text for 6.4.

33) As needed to facilitate widespread adoption and use of Open-edi in support of application areas such as electronic commerce, electronic administration, electronic business, e-logistics, e-government, e-education, e-travel, e-learning, e-medicine, etc.

34) The definition for "information" is referenced in this standard in 3.29.

NOTE 3 This definition covers:

i) any form of recorded information, means of recording, and any medium on which information can be recorded; and,

ii) all types of recorded information including all data types, instructions or software, databases, etc.

The term "medium" is defined as:

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

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

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

NOTE 3 This definition of "medium" is independent of:

i) form or format of recorded information;

ii) physical dimension and/or size; and,

iii) any container or housing that is physically separate from material being housed and without which the medium can remain a functional unit.

NOTE 4 This definition of "medium" also captures and integrates the following key properties:

i) the property of medium as a material in or on which information or data can be recorded and retrieved;

ii) the property of storage;

iii) the property of physical carrier;

iv) the property of physical manifestation, i.e., material;

v) the property of a functional unit; and,

vi) the property of (some degree of) stability of the material in or on which the information or data is recorded.

The relation of “information” to “recorded information” and “medium” to existing legal and commercial frameworks for business transactions is illustrated in Figure 19.

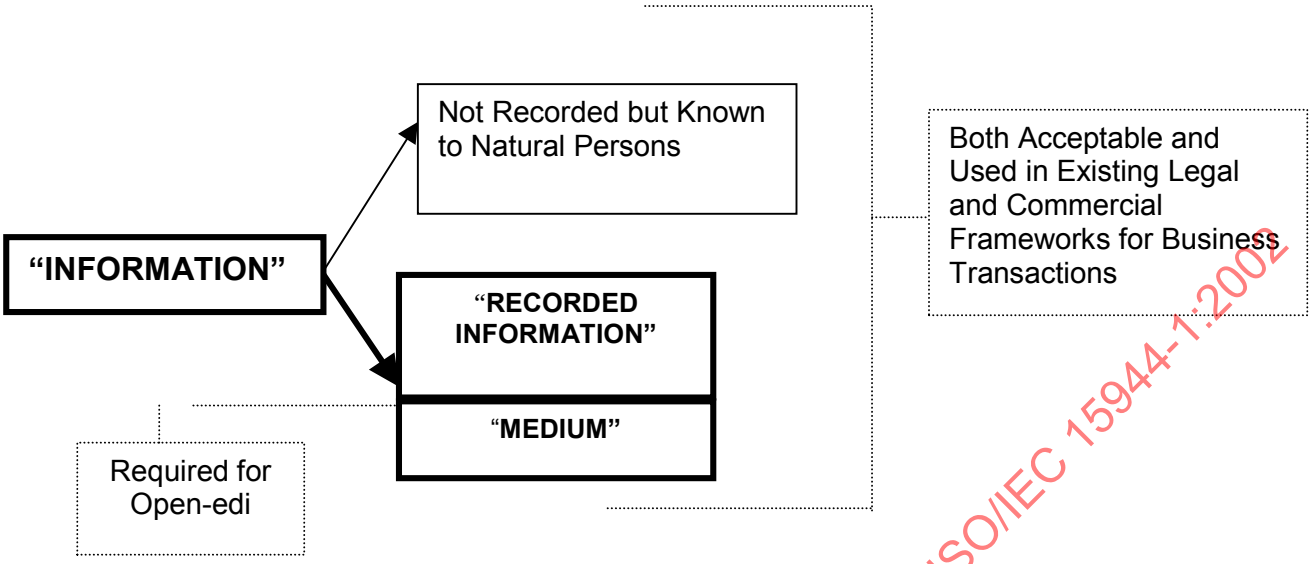

Figure 19 — Relation of "Information", Recorded Information" & "Medium" in Business Transactions — Legal, Commercial and Open-edi Requirements

6.4.2 Predefined and structured data elements

Rule 45:

Not all recorded information is data, but all data is recorded information.

Not all recorded information is data but all data is a category of recorded information. Data is a particular category of recorded information which has certain properties. The definition of "data" in the context of an electronic business transaction is:[35)]

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

NOTE 1 Under this definition of "data", software is a subset or category of data.

NOTE 2 This definition of "data" is presented from the perspectives of both the legal framework and standardization framework and is generic in nature. It is applicable to all categories of information exchanges involving computer systems and telecommunication networks.

NOTE 3 Use of the term "recorded information" in this definition means that all attributes of this term are inherited.

Rule 46:

Electronic business transactions require (1) data; and, (2) data that is recorded or stored on any medium in or by a computer system.

---

35) This definition integrates definitions of "data" from IT, commercial and legal perspectives. The use of the term "computer systems" links to the Open-edi Reference Model definitions "4.1.19 "Electronic Data Interchange (EDI)" and "4.1.31 Information Technology System (IT system)".

Electronic commerce by definition requires the use of information technology and particularly that of a computer system. Any recorded information that does not have the properties of "data" and cannot be utilized in a computer system does not form part of an Open-edi business transaction. This is illustrated in Figure 20.

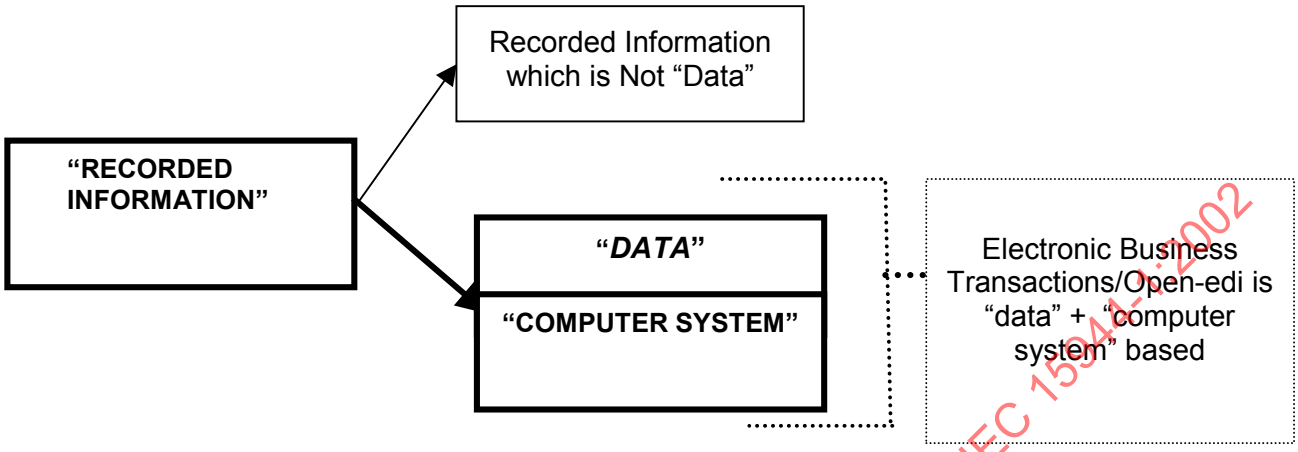

Figure 20 — Relation of "Recorded Information", "Data" and "Computer System" in Electronic Business Transactions / Open-edi

Rule 47:

The definition of "data", and related information technology terms and definitions found in this standard shall able to be mapped into legal frameworks.

Guideline 47G1:

Business transactions are primarily data element-based.

Figure 21 provides an illustration of this rule.

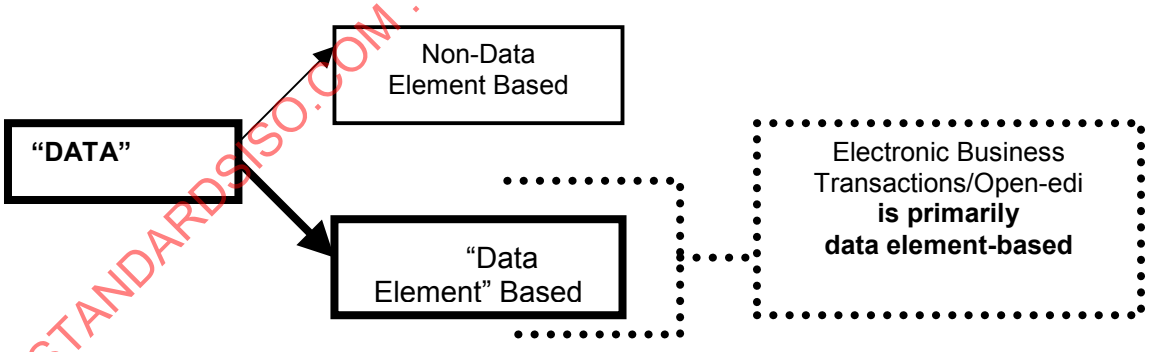

Figure 21 — Relations "Data" and "Data Elements" in Electronic Business Transactions/Open-edi

Guideline 47G2:

Having a standard definition of "data element" supports requirements of unambiguousness in electronic commerce.

The current version of ISO/IEC 11179-3:1994 "Information Technology Specification and Standardization of Data Elements" defines data element as:

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

It suffices to note that the more complete and precise the specification of the set of attributes[36] pertaining to a data element, the higher the level of certainty (unambiguousness), of the semantics in the meaning and use of a data element in (electronic) business transactions.

Rule 48:

Standards development work in support of electronic business transactions shall incorporate and support data granularity requirements. The level of granularity reflects the degree of detail appropriate to the level of certainty required in the data being interchanged among the parties participating in a business transaction.

Guideline 48G1:

The greater the degree to which data is structured and predefined, i.e., is "data-element-based", the less ambiguity and the higher the degree of cost-effectiveness and efficiencies in the utilization of information technologies in support of Open-edi.

Guideline 48G2:

The degree to which "ambiguity" in (electronic) business transactions can be minimized is directly related to the ability to reuse scenario components reliably, thus realizing the opportunities in and potential of Open-edi as well as its widespread adoption and use in various application areas, (e.g., e-commerce, e-administration, e-government, e-business, e-logistics, etc.).

Guideline 48G3:

With respect to Open-edi standards development pertaining to the data component, the priority is be placed on data which is of the nature of data elements and within this context, data elements which are (or should be) predefined and structured.

Data of this nature already exists and is used extensively in commerce world-wide and are commonly known as "code sets".[37]

Rule 46 and associated guidelines are graphically represented in the following illustration, i.e., Figure 22:

36) See further below 8.5.5. “Rules for the specification of Semantic Components and Semantic Components attributes”.

37) See further ISO/IEC 18022 -*"Information technology- Identification, Mapping and IT-enablement of Standards for Widely Used Coded Value Domains*”. This standard is under development by ISO/IEC JTC1/SC32 WG2 - Metadata.

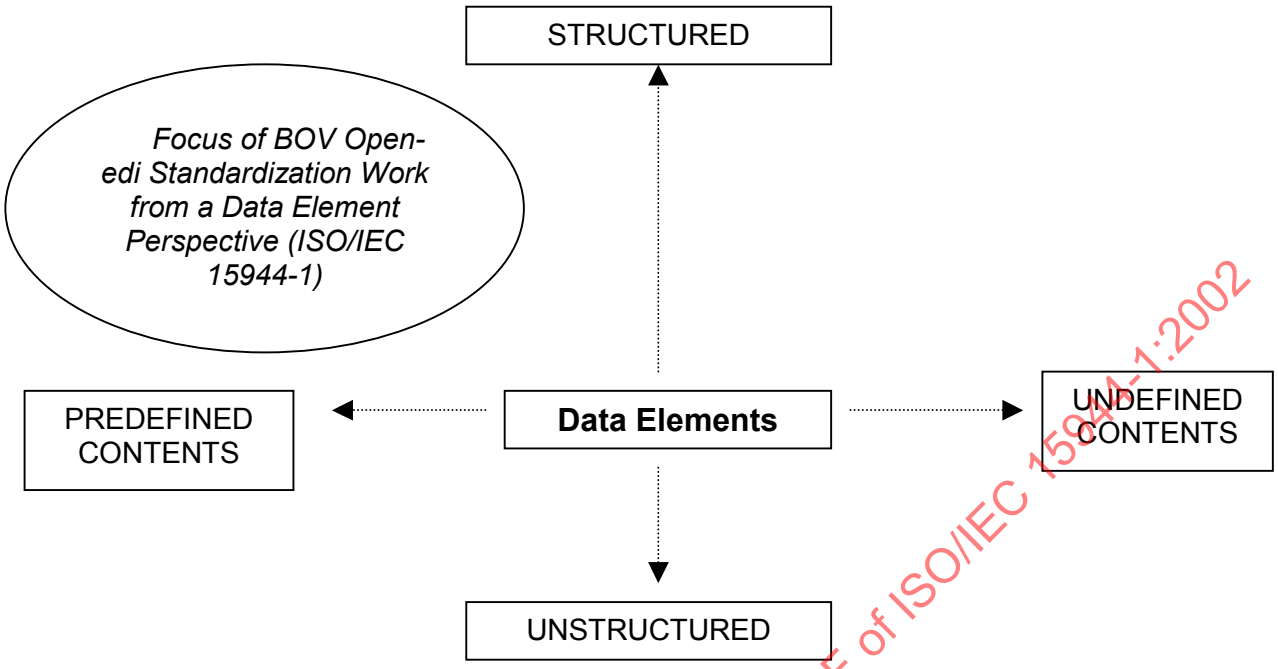

Figure 22 — Focus of BOV Open-edi Standardization Work from Data Element Perspective — Predefined and Structured Data Elements

6.5 Business requirements on the FSV (Business demands on Open-Edi Support Infrastructure)

6.5.1 Introduction

The transfer of information between and among Open-edi Parties in Open-edi may require the use of electronic security methods and techniques just as in the paper based world information could be put in tamper-evident envelopes or sent registered delivery or by courier. Regulators may control the use of electronic systems for the transfer of information. Regulators may restrict information from being sent by parties subject to their control to parties domiciled in other jurisdictions, or may regulate in specific ways the application or use of security methods and techniques.

Rule 49

Open-edi scenarios and Information Bundles shall therefore be capable of reflecting constraints to be applied which may be as a result of:

— commitments among parties, i.e., as internal constraints;

— external constraints.

These requirements (constraints) are not usually captured by traditional modelling methods because these concentrate on identifying the flows of internal information required and the triggers that cause its movement. As a result, scenario and Information Bundle designers must ensure that both internal and external constraints are correctly captured and recorded and included with scenario and Information Bundle definitions.

6.5.2 Self-imposed constraints

Generic services required by businesses in support of self-imposed constraints, i.e., internal constraints, include:

1) Certainty of the accuracy of the Information Bundle (also referred to as Information Bundle integrity);

2) Knowledge of the authorization of the Information Bundle (also referred to as non-repudiation of source);

3) Confidentiality of the Information Bundle contents;

4) Certainty of the sending of an Information Bundle (also referred to as non-repudiation of despatch);

5) Certainty that a Information Bundle has been received (also referred to as non-repudiation of receipt);

6) Proof of the time at which an Information Bundle was created or sent (also referred to as timestamping services);

7) Notarization of an Information Bundle;

8) Quality of service.

A further generic requirement may be to have explicit knowledge of the progress of an Information Bundle that has been despatched prior to its final receipt.

Any or all of these services may be specified by any of the parties involved in the scenario. However, at each stage in a scenario, only the party sending an Information Bundle is able to implement those requirements. It is not possible for any receiving party to affect the decision made by the sending party in terms of the functions implemented. However, it is possible that a receiving party could refuse to accept the Information Bundle because its security treatment by the sender was not acceptable.

Security requirements listed above are those which may be agreed contractually between parties.

There are several ways in which quality of service can be considered a requirement. In terms of the FSV the parameters of quality of service are of a series of clearly defined types:

1) the ability of the infrastructure in use to carry out its defined task within a specific timescale. This may be considered to be a Mean Time To Respond (MTTR), the Mean Time Between Failures (MTBF) or the ability to convey a specific volume of information inside a specific timescale.

2) the requirement to have processing equipment with a specific ability or capability in order to process the data provided to provide a specific result (streaming video, X-ray processing etc.).

3) the requirement that equipment being used in support of the processing activity(ies) has been developed in accordance with a particular quality standard or has been accredited against a particular standard and has achieved some specified level of compliance.

4) that the party(ies) achieve(s) one or more particular quality standards in the operation of their processes.

Other internal requirements or constraints may be created as a result of the business transaction itself, such as terms of payment, delivery requirements are expected to captured and represented as scenario components since they are business information rather than generic constraints.

6.5.3 External Constraints

The majority of business transactions will be subject to constraints applied by outside parties such as regulators, i.e., external constraints. These external constraints may vary according to the nature of the business transaction, the role being played by one of the parties or the nature of the information being sent. Sources of such external constraints include:

a) national law;

b) national regulation;

c) trade body regulation;

d) codes of practice;

e) treaties;

f) international agreements;

g) memoranda of understanding;

h) international conventions;

i) international protocols;

j) international law.

The effects of these external constraints may be to require that a specific security service is used, that the service is performed in a specific manner, or that the scenario is performed in a specific manner and using specified Information Bundles.

Examples of these external constraints include:

a) confidentiality of a part or the whole of a specific Information Bundle is required to be applied by the competent authority at the origination or the destination;

b) the mechanism used to obtain confidentiality may need to be constrained to operate in a particular manner such as the use of a specific algorithm or maximum or minimum key length;

c) the mechanism used to obtain confidentiality must support specific additional services such as the facility to allow authorised third parties to be able to read the content of the Information Bundle;

d) the mechanism(s) used to provide integrity or non-repudiation services may be constrained to use specific algorithms or methods of computation together with particular key lengths;

e) the transmission of some Information Bundles to specified nation state destinations may be constrained;

f) there may be a mandatory requirement to use a specific notary or third party as a part of the scenario or to provide information to them in a specified form or to obtain commitment from them;

g) the information may have to be reproducible in a specified format and/or may readable or perceivable by any person;

h) there may be a mandatory requirement to use an Information Bundle specified by a regulator;

i) with respect to the any of the above, there may be retention requirements for a specified time period for defined sets of recorded information, i.e., one or more predefined groupings of Information Bundles.

Where parties to an Open-edi transaction are domiciled in different jurisdictions there may be conflict between applicable external constraints. Such conflicts should be detected during the building of or playing of the scenario, and may require methods of resolution that cannot be achieved within the Open-edi scenario.

6.5.4 BOV requirements on the FSV for security methods and techniques

In order to cater for these requirements scenario descriptions and Information Bundle descriptions must include fields or labels that indicate the security functional requirements available with them.

Fields or labels must allow a party to identify any constraints that have been applied. When a scenario or Information Bundle does not indicate that a security constraint is mandatory for the scenario or the Information Bundle, there must be an indicator determining if the constraint is mandatory, conditional, mandatory subject to a conditional or optional on all recipients.[38)]

Fields or labels must also provide for constraints applied by outside parties such as regulators or similar bodies. These constraints must be explicitly stated and must identify the applicability of the constraint. For instance, if the constraint is only binding for a scenario where a party is domiciled in a specific nation state or group of nation states, or is only binding where the party is supervised or regulated by a specific authority, then these limitations must also be listed.

Scenarios, roles and/or Information Bundles may be declared as mandatory for use in specific circumstances (customs reporting to a nation state or designated authority, taxation recording, international carnet documentation and so on). Scenario designers may have to give consideration to the effect of the determination of the proper law governing a business transaction as well as the domicile of the parties sending and receiving Information Bundles or taking part in scenarios.

6.5.5 Liability of repositories[39)]

Repositories containing scenarios and Information Bundles may be required to demonstrate to the users of their services that the information disclosed is properly registered and that it is authentic. To discharge this requirement, repositories will require the use of security services to give users confidence that the scenario and Information Bundle definitions downloaded are valid and can be relied upon for their purpose. In this respect, scenario and Information Bundle repositories may need to be considered in two groups.

The first group is those that provide registration facilities on a best effort basis. That is, that scenarios or Information Bundles registered there have been done so with reasonable diligence and skill, but no guarantee as to their accuracy is given and no liability is accepted for their inaccuracies.

The second group is those that provide registration facilities where the items to be registered are checked for their correctness and, where a nation state is involved, the information is officially approved. This group will accept liability for the information that they provide to users.

6.6 Primitive classification and identification of Open-edi scenarios[40)]

6.6.1 Introduction

From the view point of Open-edi objectives, it is desired to be able to commence a business transaction by simply choosing a particular scenario from the standardized set of scenarios and applying it to the intended business transaction. In this context, the standard Open-edi scenario is supposed to be a generic class of various specific scenarios. In addition, if the generic scenario class were successfully obtained, it could consist of a small number of mandatory scenario components and many conditional and/or optional scenario components.

38) See further Annex B (Normative) - *"Codes Representing Presence-Type Attributes: Mandatory, Conditionals, Optional and Not Applicable*".

39) This clause is a summary only and the topic is addressed in detail in ISO/IEC 15944 Part 2 "*Registration of Scenarios, Scenario Attributes and Scenario Components.*

40) This clause sets out the approach to scenario classification which is specified in ISO/IEC 15944-2 "*Registration of Scenarios, Scenario Attributes and Scenario Components.*

Although such a standardization idea for Open-edi scenarios seems to be a straightforward solution, it is likely to be difficult to distinguish a particular scenario from the others. In particular, the scenario specification having scenario components with many conditional attributes whose possible set of permitted values or behaviors are not predefined and/or registered may be so complex that the semantics could not be clearly compiled even if an excellent OeDT is employed. In addition, for those scenarios having the same scenario attributes (e.g. an OeS Set of Information Bundles) but with slightly different value domains, let alone various combinations of the same, it is not evident whether they all have to be interpreted as a single scenario or not. Even if each scenario could be formally identified, having a unique identifier, many scenarios that are actually identical for semantics may be redundantly registered as standard scenarios. Discrimination of scenarios becomes increasingly difficult under these conditions. Such overlap and duplication must be avoided and the focus must be on maximizing reuseability. (This issue is addressed in detail in Part 2 of this standard.)

One of the effective solutions to avoid the confusion and maximize reuseability is to establish a scenario classification scheme based on well-defined criteria designed to reduce the complexity of conditional attributes as much as possible.

6.6.2 Classification of Open-edi scenarios

6.6.2.1 Requirements for classification of Open-edi scenarios

The classification for Open-edi scenarios should meet the following requirements:

1) **Simplicity**: the classification is plainly and unambiguously defined.

2) **Selectivity**: the classification is disjoint and non-redundant.

3) **Inclusiveness**: the classification applies to any of Open-edi scenarios.

4) **Stability**: the classification is stable for the environmental changes.

5) **Reality**: the classification is applicable to real world business transactions.

The definition of the most primitive business transaction addresses the interaction of the roles of a buyer and a seller. Many terms are in common use for these roles. In this framework standard, the terms "consumer" and "vendor" have specific definitions to ensure clarity during the process of classification.[41)]

In support of the requirements stated above, three factors have been initially identified as attributes when classifying Open-edi scenarios.

6.6.2.1.1 Market type on business boundary

A business transaction can consist of the following business activities:

a) A buyer finds a relevant seller(s) through the network by using certain services and/or tools, such as a portal site and/or a search engine.

b) The buyer negotiates the business terms and conditions with the seller(s).

c) The buyer receives the goods or services and pays the amount of price to the seller(s) according to the business terms and conditions.

41) See above, "6.2.8 Person and external constraints: consumer and vendor".

In this business transaction, the existence of a defined market is not mentioned. However, in most cases, business transactions are performed in markets where the business rules and conventions are well-known and relatively stable. For example, in a financial transactions, which trades a value and/or credit with other Persons without the physical delivery of cash or security, the established conventions of financial markets provide predefined sets of activities and information exchanges as well as roles of parties to such transactions. Thus this can be considered a "defined market. In such a defined market, the buyers and the sellers chose from predefined sets of choices, known as "principal terms and conditions" for their business transactions. They participate in the defined market, by accepting such "principal terms and conditions" by registering in advance.

Other scenario constructs, such as identification and authentication procedures, may be also greatly changed depending on whether a defined market exists or not. Classification of Open-edi scenarios by knowing whether the market type to which the scenario is to apply is "defined" or "undefined." "Market type" is particularly meaningful in identifying the boundary of a business transaction and such features as trigger or completion terms.

6.6.2.1.2 Settlement type in business process

From the viewpoint of a business process (mentioned as a fundamental component of business transactions, see 6.3 above), it is important to know whether all the elements of "actualization" of a business transaction (delivery of goods or services, payment, etc.) are simultaneously settled through a network, or separately performed through different channels and with various time duration for actualization elements. In the case of simultaneous settlement, the business transaction could be immediately completed if the delivery of goods or services and the payment are both valid and acceptable for all of the participants. On the other hand, if the delivery of the good, service, and/or right and payment are separately performed through different channels respectively, the business transaction could not be completed until a later time when their acceptance and settlement are confirmed.

In order to bridge the time difference and/or spatial gap of the delivery of goods or services and payment, the concrete identification of the business transaction and the authentication of either or both participants (as recognized Person identities), are required to establish the credit and debit relationship among them relevant to the business transaction. It also requires ability to differentiate scenario constructs depending on the settlement type.

6.6.2.1.3 Roles in business transactions: primitive or complex

Regarding the roles of Persons in business transactions in Open-edi (mentioned as a fundamental component, see 6.1.5 above), these roles are considered as being either "primitive" or "complex". Buyer and seller are two mandatory roles in any business transaction and are therefore classified as "primitives". Complexity arises from the decision by the buyer or seller to add the role of an "agent" or a "third party" or both in a business transaction to be modelled as an Open-edi scenario.

Thus the third factor for classification of Open-edi scenarios pertains to roles and the need to distinguish between primitive or complex. In many cases, a business transaction is completed when the delivery of goods or services and settlement are both confirmed between the buyer and seller. However, in some cases of business transactions, such as a real estate transaction through an escrow company, a third party other than the buyer and seller is involved in the business transaction. In that case, the business transaction is completed only when the escrow has confirmed the delivery of good, service, and/or right and settlement according to the terms and conditions of the specific business transaction. Each participation type may have its own scenario construct respectively.

6.6.3 Trade models based on three classifications factors

The simplest business process shown in Figure 23 is the primitive trade model. This provides the base from which we start the discussion of the trade models that can be derived from the classification factors discussed above.

Figure 23 — Primitive Trade Model

The description of the Primitive Trade Model is as follows:

Beginning of Trade: either a buyer or a seller finds the negotiable counterpart as a result of appropriate approaches in a market (as a result of planning and identification processes).

Trade Scenario: then either or both a buyer and/or a seller shows an acceptable scenario to the counterpart, and negotiates the terms and conditions of business transaction based on the choices within the accepted scenario. In general, the way of acceptance of a particular scenario or choice of scenarios may be a part of the terms and conditions of the anticipated business transaction.

Authentication of Participants: for the confirmation of the settlement of credit and/or debit between the buyer and seller, it is assumed that the buyer and/or seller have already been identified (and can therefore be authenticated) as necessary. The authentication of the identification of the buyer or seller is likely to be mandatory in the case where the payment or delivery of the good, service, and/or right is performed later than the agreement resulting from the negotiation process. If both delivery of the good, service, and/or right and payment are performed later than the agreement, the authentication of both participants is mandatory. However, if the delivery of the good, service, and/or right and the payment are simultaneously and immediately performed as well as the agreement, no authentication of buyer or seller is required (unless there are constraints that require it).

Completion of Trade: the trade will complete when both of the delivery of the good, service, and/or right and payment are successfully finished (the actualization phase is completed but there may be post-actualization requirements such as warranties remaining).

6.6.3.1 Trade models by market type

Two trade models are derived from classification by market type.

Defined Market Model: a trade model where the buyer and seller accept the entry terms of market in advance and then commence the actual business transactions. A defined market must have an accepted and recognized source for the business rules and conventions for that market, including adjudication of disputes in the market (a "market administrator"). The "market administrator" of a defined market may be a buyer, seller or a third party. The scenario(s) for this trade model is explicitly established by the "market administrator". The buyer and seller participate in a defined market through an explicit registration procedure (e.g. identification/registration scenario for that market in advance, thereby qualifying for and accepting the terms and condition for participation in that market). There may be two possibilities for participation in a defined market: (1) through identification/registration of either the buyer or seller, or both; and (2) where no identification/registration is required (e.g. for those operating on a "cash", "credit card" or "payment in advance basis"). Advance identification/registration in a defined market saves work and reduces the complexity of business transactions. The ability to reference a predefined scenario(s) of a defined market in support of an actual business transaction also provides considerable savings in cost and time for such business transactions.

The significance of the defined market model is that the business scenario(s) applied to the market is predefined-for that specific market. This frees buyers and sellers from the need to negotiate principal terms and conditions for each business transaction.

Undefined Market Model: a trade model, starting from and conforming to the full primitive trade model. Buyers, sellers and administrators are not pre-registered. Therefore all five phases must be performed in undefined markets under the Open-edi environment. The buyer or seller begins the business transaction by seeking their counterpart using appropriate services and/or tools (e.g. as a portal site and search engine). The business scenario to be applied to the transaction is decided upon in each individual case. The buyer or seller may simply accept the scenario proposed by the counterpart, or they mutually negotiate.

In order to save the negotiation efforts, it is possible that the buyer or seller seeks the counterpart specifying a specific scenario in the search criteria at the beginning of the business transaction. However, generally speaking, this type of business scenario should include, as a part of the scenario, the negotiation process of the terms and conditions. Thus, the undefined market model necessarily requires the coincident agreement of scenario acceptance and the contents of terms and conditions under the scenario acceptance.

6.6.3.2 Trade models by settlement type

Two trade models are derived from the classification of the settlement type.

Immediate Settlement Model: a trade model where the entire business transaction process, (planning, identification, negotiation, delivery of goods or services and payment), is completed in real-time under the Open-edi environment. One of the typical cases is downloading a software product or music from the vendor site, and paying with e-money or a debit account. This trade model is almost equivalent to the casual procurement of a good, service, and/or right, which is done by cash at a store on the street. The procurement can be completed at the moment when it has been confirmed that the good, service, and/or right is acceptable for the buyer and the payment is valid for the seller. The identification of business transaction and/or authentication of buyer and/or seller are not required. Rather, from the viewpoint of privacy protection, such a trade model should not be excluded from the Open-edi environment, especially since such a trade model provides for anonymity (and overall cost reduction of an actual business transaction).

Separate Settlement Model: a trade model where the business transaction is performed under the Open-edi environment, and where the delivery of the good, service, and/or right and/or payment is separated from the agreement process by physical or logical processes. In this trade model, special consideration should be taken when designing a scenario construct to bridge the time difference and/or spatial gap among agreement, delivery and payment.

This trade model requires initial explicit identification of the actual business transaction required for mapping the agreement to the delivery and/or payment performed separately. Secondly, the authentication of buyer and/or seller is required to confirm the relationship of credit and debit actions among participants, that is kept through the business transaction process from agreement to delivery of goods or services and payment. Thirdly, the transaction requires that the status of the business transaction process should be identified and tracked through the completion of all the specified activities of the business transaction process.

6.6.3.3 Trade models by participation type

Two trade models are available in this participation type.

Bilateral Trade Model: a trade model where only buyer and seller are directly involved in a business transaction. In this trade model, the business relationship is basically closed between the two parties. The transaction is completed when the credit and/or debit are settled between the buyer and seller.

Mediated Trade Model: a trade model where one or more agents and/or third parties can be included in addition to the buyer and seller. For example, where a third party mediates the buyer and seller. Here, a typical example is a business transaction involving real estate where an Escrow company mediates the buyer and seller. In this trade model, the role of the third party may have many variations. The scenario(s) for such business transactions must explicitly denote the role and responsibility of the third party (and/or agents) participating in the business transaction. And, the business transaction should also satisfy the terms and conditions which are relevant to the third party for the completion, not only the settlement of the debit/credit between the buyer and seller.

6.6.4 Classification and components of Open-edi scenarios

6.6.4.1 Classification on Open-edi scenarios

The classification attributes in the previous clause, Market Type, Payment Type and Participation Type are mutually disjoint. Applying each of them to an axis of 3-dimensions, a classification of Open-edi scenarios is obtained together with their scenario constructs and is summarized in Figure 24.

Class	**Classification Attributes**			Scenario Construct
	Market	**Settlement**	**Participation**	
a) U-I-P	Undefined	Immediate	Primitive	d) Basic Primitive Trade Scenario
b) U-I-C	Undefined	Immediate	Complex	e) Basic Complex Trade Scenario
c) U-S-P	Undefined	Separate	Primitive	f) Primitive Agreement Scenario g) Separate Delivery Scenario h) Separate Payment Scenario i) Authentication Scenario
d) U-S-C	Undefined	Separate	Complex	j) Complex Agreement Scenario k) Separate Delivery Scenario l) Separate Payment Scenario m) Authentication Scenario
e) D-I-P	Defined	Immediate	Primitive	n) Membership Registration Scenario o) Defined Primitive Trade Scenario
f) D-I-C	Defined	Immediate	Complex	p) Membership Registration Scenario q) Defined Complex Trade Scenario
g) D-S-P	Defined	Separate	Primitive	r) Membership Registration Scenario s) Defined Primitive Agreement Scenario t) Separate Delivery Scenario u) Separate Payment Scenario v) Defined Authentication Scenario
h) D-S-C	Defined	Separate	Complex	w) Membership Registration Scenario x) Defined Complex Agreement Scenario y) Separate Delivery Scenario z) Separate Payment Scenario aa) Defined Authentication Scenario

Figure 24 — Scenario Classification and Constructs

a) **U-I-P Class:** a scenario class of business transactions with the attributes undefined market, immediate settlement and primitive participation. This scenario class consists of a single basic primitive trade scenario that is conforming to the primitive rrade model under the Open-edi environment.

b) **U-I-C Class:** a scenario class of business transactions with the attributes undefined market, immediate settlement and complex participation. This scenario class consists of a single basic complex trade scenario, which is a complete set of complex trade processes under the Open-edi environment.

c) **U-S-P Class:** a scenario class of business transactions with the attributes undefined market, separate settlement and primitive participation. This scenario class consists of the following four components: primitive agreement scenario, separate delivery scenario, separate payment scenario and authentication scenario.

d) **U-S-C Class:** a scenario class of business transactions with the attributes undefined market, separate settlement and complex participation. This scenario class consists of the following four components: complex agreement scenario, separate delivery scenario, separate payment scenario and authentication scenario.

e) **D-I-P Class:** a scenario class of business transactions with the attributes defined market, immediate settlement and primitive participation. This scenario class consists of the following two components: membership registration scenario and defined primitive trade scenario.

f) **D-I-C Class:** a scenario class of business transactions with the attributes defined market, immediate settlement and complex participation. This scenario class consists of the following two components: membership registration scenario and defined complex trade scenario.

g) **D-S-P Class:** a scenario class of business transactions with the attributes defined market, separate settlement and primitive participation. This scenario class consists of the following five components: membership registration scenario, defined primitive agreement scenario, separate delivery scenario, separate payment scenario and defined authentication scenario.

h) **D-S-C Class:** a scenario class of business transactions with the attributes defined market, separate settlement and complex participation. This scenario class consists of the following five components: membership registration scenario, defined complex agreement scenario, separate delivery scenario, separate payment scenario and defined authentication scenario.

6.6.4.2 Scenario components

As shown in Figure 24, the scenario components required for each class are quite different depending on scenario classes. The scenario components are now described in more detail, as follows:

6.6.4.2.1 Basic primitive trade scenario:

This scenario includes all processes of a transaction to begin and complete a basic primitive trade.

At the beginning of business transaction, either the buyer or seller finds their counter-part by appropriate searches.

Then, either the buyer or seller shows an acceptable scenario to the counterpart and negotiates the terms and conditions of business transaction. The manner of acceptance of a particular scenario may be a part of the terms and conditions.

The business transaction will complete when both the delivery of the good, service, and/or right and payment are simultaneously completed.

No authentication of buyer and seller is required because the delivery and payment are simultaneously and immediately performed as well as the agreement of business transaction. No authentication is required as the parties mutually recognize each other.

6.6.4.2.2 Basic complex trade scenario:

This scenario includes all processes of a transaction to begin and complete a basic complex trade.

At the beginning of a business transaction, either or both the buyer and seller find the negotiable counterpart by appropriate searches or through an appropriate mediator.

Then, either the buyer or seller shows an acceptable scenario to the counterpart, and negotiates the terms and conditions of business transaction under the mediation of mediator(s). The manner of acceptance of a particular scenario may be a part of the terms and conditions.

The business transaction will complete when both the delivery of the good, service, and/or right and payment are simultaneously finished and confirmed by the participants according to the terms and conditions agreed upon the business transaction.

No authentication of buyer and seller may be required because the delivery and payment are simultaneously and immediately performed as well as the agreement of business transaction. The mediator is required a certain authentication to qualify the ability of mediation. The actual qualification depends on the role of mediator.

6.6.4.2.3 Defined primitive trade scenario:

This scenario is the core of D-I-P scenario and includes all processes of a business transaction to begin and complete a defined primitive trade of which the terms and conditions are accepted in advance by the participants.

Before participating to the business transaction, the buyer and/or seller must identify/register themselves according to the requirements of the defined market and to accept its terms and conditions of trade.

Either the buyer or seller begins the actual business transaction according to the direction provided by the rules of the defined market.

The business transaction is completed when both the delivery of the good, service, and/or right and payment are simultaneously finished and confirmed by the participants according to the terms and conditions defined in the market and/or agreed upon the business transaction.

The qualification of membership in a defined market is required of participants. However, no authentication of buyer and seller may be required because the delivery of the good, service, and/or right and payment are simultaneously and immediately performed as well as the agreement of business transaction.

6.6.4.2.4 Defined complex trade scenario:

This scenario is the core of D-I-C scenario and includes all processes of a business transaction to begin and complete a defined complex trade of which the terms and conditions are accepted in advance by the participants.

Before participating in the business transaction, the buyer, seller and/or mediator must register as members of the defined market and accept the terms and conditions of trade.

Either the buyer or seller begins and negotiates the actual business transaction according to the rules of the specific market under the mediation of an appropriate third party. The business transaction is completed when both the delivery of the good, service, and/or right and payment are simultaneously finished and confirmed by the participants according to the terms and conditions defined in the market and/or agreed upon in the business transaction.

The qualification of membership is required for the participants. But no authentication of buyer and seller may be required because the delivery of goods or services and payment are simultaneously and immediately performed as well as the agreement of business transaction.

6.6.4.2.5 Primitive agreement scenario:

This scenario is the agreement part of U-S-P scenario, where the delivery of goods or services is not simultaneously linked to payment of the business transaction.

At the beginning, either the buyer or seller finds their counter-part through an appropriate means. Then, either or both of them show an acceptable scenario(s) to the counterpart, and negotiate the terms and conditions of business transaction as provided for by the possible choices in that scenario. The manner of acceptance of a particular scenario may be a part of the terms and conditions.

In the agreement, it is explicitly described that the delivery of the good, service, and/or right and/or payment are separately performed. A unique identification of the business transaction is required for mapping the agreement to the delivery of the good, service, and/or right and/or payment performed separately. And, the identification should be unambiguous in the global scope because than unbounded market does not have a well-defined boundary.

The business transaction will complete when both the delivery of the good, service, and/or right and payment are successfully finished and confirmed by the participants according to the separate delivery scenario and separate payment scenario.

6.6.4.2.6 Defined primitive agreement scenario:

This scenario is the agreement part of D-S-P scenario, which separtes the delivery of goods or services from the payment of the business transaction.

Before participating in the business transaction, the buyer and/or seller are required to register as members of the specific market and to accept the terms and conditions of trade.

Either the buyer or seller begins the actual business transaction according to the rules of the specific market.

In the agreement, it is explicitly described that the delivery of goods or services and/or payment is separately performed later. A unique identification of the business transaction is required for mapping the agreement to the delivery of goods or services and/or payment performed separately. And, the identification should be unique and unambiguous in the market boundary.

The business transaction will complete when both the delivery of the good, service, and/or right as well as payment are successfully finished and confirmed by the participants according to the terms and conditions defined in the market and/or to the separate delivery scenario and separate payment scenario.

6.6.4.2.7 Complex agreement scenario:

This scenario is the agreement part of U-S-C scenario, where the delivery of goods or services are separate from payment of the transaction.

Either the buyer or seller begins and negotiates the actual business transaction under the mediation of an appropriate mediator according to the rule of the specific market.

The business transaction is completed when both the delivery of the good, service, and/or right and payment are successfully finished and confirmed by the participants according to the separate delivery scenario and separate payment scenario.

In the agreement, it is explicitly stated that the delivery of goods or services and/or payment is separately performed later. In addition, a unique identification of the actual business transaction is required for mapping the agreement to the delivery of the good, service, and/or right and/or payment performed separately. And, the identification of business transaction should be unambiguous in the global scope because the unbounded market may not have a well-defined boundary.

The business transaction will complete when both the delivery of the good, service, and/or right and payment are successfully finished and confirmed by the participants according to the separate delivery scenario and separate payment scenario.

6.6.4.2.8 Defined complex agreement scenario:

This scenario is the agreement part of D-S-C scenario, where the delivery of goods or services are separate from payment the business transaction in a defined market.

Either the buyer or seller begins and negotiates the actual business transaction according to the rules of the defined market.

In the agreement, it is explicitly described that the delivery of goods or services and/or payment are performed at different times. A unique and unambiguous identification of the business transaction is required for mapping the agreement to the delivery of the good, service, and/or right top her separate payment. The identification of business transaction should be unique in the market boundary.

The business transaction is completed when both the delivery of the good, service, and/or right and the payment are successfully finished and confirmed by the participants according to the terms and conditions defined in the market and/or to the separate delivery scenario and separate payment scenario.

6.6.4.2.9 Separate delivery scenario:

This scenario is the delivery part of U-S-P, U-S-C, D-S-P and D-S-C scenarios, which is separately performed after the agreement on the actual business transaction. When the delivery of goods or services is performed separately from the agreement of the business transaction, the specific terms and conditions of delivery of the good, service, and/or right should be explicitly specified. The delivery status should be noted in the scenario, as the completion of delivery of the good, service, and/or rights is a mandatory factor for the completion of the actual business transaction as a whole.

Furthermore, the delivery scenario should keep a stable reference to the precedent agreement scenario to denote the relationship between the separated activities of a business transaction.

6.6.4.2.10 Separate payment scenario:

This scenario is the payment part of U-S-P, U-S-C, D-S-P and D-S-C scenarios, which is separately performed after the agreement of business transaction. When the payment is separately performed after the agreement of the business transaction, the payment scenario is required to explicitly state the specific terms and conditions of payment. The payment status should also be noted in the scenario, as the completion of payment is a mandatory factor for the completion of the business transaction as a whole. Furthermore, the payment scenario should keep a stable reference to the relevant preceding agreement scenario to denote the relationship between the separated activities of a business transaction.

6.6.4.2.11 Authentication scenario:

This scenario is the authentication part of U-S-P and U-S-C scenarios, which identifies and confirms the agreement and/or the participants relevant to the business transaction in an undefined market. When the delivery of goods or services and/or payment is separately performed after the agreement of the business transaction, the authentication scenario is required to explicitly identify and confirm the credit and debit relationship between participants involved in the business transaction. The identification of agreement and/or participants should be unambiguous in the global scope because the implicit market may not have a well-defined boundary.

The authentication scenario should also keep a stable reference to the relevant agreement scenario to denote the relationship among the business transaction, the agreement and/or the participants.

6.6.4.2.12 Defined authentication scenario:

This scenario is the authentication part of D-S-P and D-S-C scenarios, which identifies and confirms the agreement and/or the participants relevant to the business transaction. Authentication assumes that identification has already been established by means that are adequate for the business purpose. When the delivery of goods or services and/or payment is separately performed after the agreement of the business transaction, an authentication scenario is required to explicitly identify and confirm the identities that will be use for the financial settlement between the participants involved in the business transaction.

The authentication scheme is based on the rules for identification of the specific market. The identification of agreement and/or participants within a defined market shall be unique and unambiguous.

The authentication scenario should also keep a stable reference to the relevant agreement scenario to denote the relationship among the business transaction the agreement and/or the participants.

6.6.4.3 Remarks on scenario classification

6.6.4.3.1 Continuous transaction:

For scenario component construction purposes there is no difference between continuous repeating transactions and one-of or spot transactions. A continuous transaction is considered to be a repetition of spot transactions where the terms and conditions do not change with each transaction and variations occur only as permitted under such terms and conditions as the scenario provides.

6.6.4.3.2 Services transaction:

A business transaction of services is basically the same as one for goods even if it may have different attributes that are relevant to a different delivery procedure and status confirmation.

6.6.4.3.3 Auction transaction:

An auction transaction is a variation of the complex business transaction, which requires the competitive participation of two or more buyers and at least one seller for a sale of good, service, and/or right.

6.6.4.3.4 Bidding transaction:

A bidding transaction is a variation of primitive transaction, which requires the competitive participation of two or more sellers for a good, service, and/or right.

6.6.4.3.5 Credit payment transaction:

A business transaction settled by a credit card requires a provision of credit and the authentication of at least the credit card number of the buyer and may require verification of credit from the authenticated credit provider. Thus the transaction type is differed from the transaction by cash, and variation of the of separate payment model.

6.6.4.3.6 Regulatory constraints:

Actual business transactions may be subject to external constraints in addition to rules that the parties have agreed to. Many types of constraints of a regulatory nature exist. Each such external constraint is partially or entirely applied to a specific market type, participant type, good, service, and/or right type, delivery type and/or payment type, etc. Some regulations apply only in a specific country or region (i.e., jurisdiction), and/or for only a certain time period.

However, the above scenario classification is considered to be independent from regulatory requirements, i.e., external constraints.

7 Guidelines for scoping open-edi scenarios

7.1 Introduction and basic principles[42)]

This clause builds on the structure developed in Clauses 1 through 6. Together with rules, it provides the user with a preliminary template or checklist for scoping Open-edi scenarios.

42) Clause 7 and the resulting template are meant to complement Clauses 8 and 9 which contain the primitive specification requirements for Open-edi scenarios and their components. ISO/IEC 15944 Part 2 adds more detailed requirements from both a scenario analysis and a registration needs perspective.

While Clauses 8 and 9 below provide detailed rules for the specification of Open-edi scenarios and their components, Clause 7 focuses on the scoping the business environment of the business transaction modelled through an Open-edi scenario.

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

The basic principles for scoping Open-edi scenarios include:

1) A first priority on identifying the most primitive (generic and common) components of a business transaction;

2) determining at the outset whether the business transaction to be modelled is of a simple, generic nature there are no external constraints on the business transaction and it does not include parties other than a buyer and seller;

3) establishing whether the parties making commitments with respect to their roles in a business transaction, are the "Persons" undifferentiated, or is the business relationship of a more granular nature(does it incorporate the three categories of Person, namely, individual, organization, and public administration?).

4) noting whether or not the scenario provides for delegation of commitment to agents or third parties;

5) with respect to the process in a business reaction, establish whether the scenario focuses on all five parts, i.e., planning, identification, negotiation, actualization and post-actualization, one or any combination of them;

6) establishing the degree to which the recorded information is of the nature of predefined and structured data elements;

7) serving as a checklist for identifying criteria of YES/NO nature. This facilitates registration of scenario and scenario components in repositories for their re-use;

8) facilitating users of such repositories to see if a "best fit" is available and if necessary, build additional components for existing scenarios to create a best fit rather than developing 'ground-up';

9) ensuring that the criteria for scoping an Open-edi scenario are able to be used to avoid/prevent "scope creep" of scenario definition;

10) identifying whether and which kinds of generic functional services are required to support the scenario.

7.2 Rules for scoping Open-edi scenarios

The rules which follow focus, first of all, on scoping Open-edi scenarios from the BOV perspective, as found above in 6.1 through 6.4 and 6.6, and, then, on business requirements on the Functional Services View (FSV), i.e., as found in 6.5.

Completion of the associated template in 7.3 below will facilitate completion of the more detailed Open-edi scenario template found below in Clause 9. For example, if the Open-edi scenario is scoped as being applicable to modelling business transactions as having no external constraints, i.e., internal constraints only, all the attributes for "Open-edi scenario (OeS) attributes, "role attributes", "role demands on Open-edi Parties", and "Information Bundle (IB)" attributes, pertaining to "external constraints on business requirements, i.e., laws and regulations", would be specified as "Not Applicable". On the other hand, if (minimum) external constraints apply as applicable to the modelling of a business transaction, these must be specified in the scoping of a scenario, its attributes and components.

Rule 50:

The requirement for an Open-edi scenario to incorporate external constraints on a business transaction shall be stated at the outset.[43)]

NOTE 1 Many of the elements of a business transaction are generic, i.e., independent of the good, service, and/or right provided, (e.g., "planning" including making known availability of goods or services via a catalogue, terms of payment, methods of delivery, including modes of transport for physical goods or via telecommunications for "virtual" goods/services, post-actualization including warranties, etc.).

NOTE 2 It is anticipated that many re-useable Open-edi scenarios and scenario components will be developed and registered which model common elements of global/international business transactions, which can later be particularised by external constraints.

Rule 51:

It is necessary to state whether the Open-edi Parties in the business transaction being modelled are (a) Persons in general, i.e., undifferentiated; or (b) differentiated among categories of Persons, i.e., subtypes, as individuals, organizations and public administration.

NOTE 1 From a generic perspective, one can model a business transaction as re-useable Open-edi scenarios and scenario components based on the assumption that the Open-edi Party has the properties and behaviors of a "Person", i.e., ability to commit, being held accountable, etc., without needing to further differentiate as to the category of "Person".

NOTE 2 On the other hand, business transactions being modelled through Open-edi scenarios and scenario components may well focus on "organization to organization" only (colloquially labelled "B2B") or on "organization to individual" (colloquially known as "B2C"). They may also have specific requirements where one Person is public administration.

NOTE 3 Further, business transactions involving public administration as the buyer are different in that the "buyer" as a public administration will likely impose predefined external constraints.

NOTE 4 Finally, "individual to individual" business transactions are most likely to be mediated via a third party such as a credit card or e-cash provider.

Rule 52:

It is necessary to specify whether or not any of the commitments among the primary parties involved in a business transaction, i.e., the seller and buyer, can be delegated to an agent and/or a third party.

NOTE 1 Roles of Open-edi Parties in a business transaction may or may not be delegate-able. In addition, from a re-usability perspective, one may well want to register an Open-edi scenario or scenario component at a very generic level, i.e., without any delegation of commitments.

NOTE 2 On the other hand, users of this standard may well want to take such a generic re-usable component and add to it the allow-ability:

— or a seller to utilize an "agent";

— for a buyer to utilize an "agent";

— for buyers and sellers to mutually agree to utilize a third party;

— for a third party to offer services as a "mediating party" facilitating prospective buyers and sellers to come together. {See further 6.6.3.3 Trade Models}

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43) Note: ISO/IEC JTC1/SC32 is sponsoring a NWI (see ISO/IEC JTC1 N5846) which has been accepted (see ISO/IEC JTC1 N6204) to address the issue of jurisdictions as it impacts specification of external constraints on business transactions. This NWI is directed at being able to identify and reference laws and regulations impacting scenarios and scenario components. Development is underway of ISO/IEC 18038 — *Information technology — Identification and Mapping of Various Categories of Jurisdictional Domains"*.

Rule 53:

A business transaction consists of a predefined set of activities and/or processes. It is necessary to state whether an Open-edi scenario (a) covers the five identified sets of activities of the business process; planning, identification, negotiation, (actualization, and, post-actualization); or covers only one or a specific combination of these activities.

NOTE 1 A seller having available a predefined catalogue of goods or services will benefit from having a generic Open-edi scenario scoped at providing this generic function.

NOTE 2 Unambiguous identification is a major issue in e-commerce (and e-business, e-commerce, etc.). Availability of a generic Open-edi scenario focusing on identification of Persons specifying the WHATs independent of the HOWs will benefit all parties.

NOTE 3 Terms of payment are a generic requirement to most business transactions. An Open-edi scenario focusing on "terms of payment", would (1) assume that the "Identification" process has already been completed; and, (2) cover the negotiation, actualization and post-actualization aspects.

Rule 54:

When scoping Open-edi scenarios or any of their components, the presence or absence of coded value domains (CVDs) or reference sets of predefined and structured data shall be specified.

Guideline 54G1:

If a set of predefined and structured data elements, i.e., a coded value domain, is utilized it shall be explicitly referenced. It is recommended that such referenced coded value domains are conformant with ISO/IEC 18022.

Rule 55:

As part of the scoping of Open-edi scenarios, it is necessary to identify (1) which of the three factors for classification of Open-edi scenarios apply, i.e., (a) market type, (b) settlement type, and (c) primitive or complex roles; and, (2) which of the two basic, mutually exclusive options applies for each of these three factors.

NOTE This rule captures the key elements to be captured in the template {See 7.3 below} in support of the requirements arising from 6.6 Classification and Identification of Open-edi scenarios. {See also Annex H}

Rule 56:

It is necessary to state for Open-edi scenarios, whether or not the business transaction being modelled places demands on the Open-edi Support Infrastructure, i.e., in support of those commitments mutually agreed to by the persons involved.

NOTE This rule captures the key elements to be captured in the template {See 7.3 below} in support of the requirements arising from 6.5.2 Self-Imposed Constraints}

Rule 57:

If the business transaction being modelled through an Open-edi scenario incorporates external constraints which impact FSV demands on Open-edi Support Infrastructure (OeSI), these shall be specified.

NOTE Not all external constraints on a business transaction place FSV demands on the OeSI, (e.g., the use of a particular coded value domain (CVD) and permitted values of codes with a CVD).

7.3 Template for specifying scope of an Open-edi scenario

7.3.1 Introduction to template

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

2) Each scoping attribute shall be specified as applicable or not applicable. These two conditions are to be coded as Yes = 1 and No = 2 Decision Code[44)] This will allow us to :

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

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

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

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

   i) scoping Open-edi scenarios; and,

   ii) specifying Open-edi scenarios and their components

   will be unique, unambiguous and linguistically neutral within ISO/IEC 15944-1 as well as within their use in ISO/IEC 15944 Part 2.

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

44) When developing an Open-edi scenario specification, a code “3” may be used to indicate a condition of “Not Yet Known”.

7.3.2 Template[45)]

IT-Interface		Linguistic Human-Interface Equivalents			Spare
Scope Tag ID Code (1)	Decision Code (2)	Name (English) (3)	Name (French) (4)	Name (Other) (5)	(6)
1000		Business goal of business transaction- No external constraints[46)]			
1010		Business goal of business transaction includes external constraints[47)]			
1040		Persons (no external constraint)			
1041		Persons: Individual <-> Individual			
1042		Persons: Individual <-> Organization[48)]			
1043		Persons: Individual <-> Public Administration			
1044		Persons: Organization <-> Organizations[49)]			
1045		Persons: Organization <-> Public Administration			
1046		Persons: Public Administration <-> Public Administration			
1060		Bilateral Transaction Model			

45) The physical appearance of the matrix of the Template is of an illustrative nature. {See further ISO/IEC 15944, Part 2}. The purpose of the Template is to ensure that all the specification requirements identified in Clause 6 and 7.2 are captured in a systematic manner. The template structure demonstrates the ability to support multiple human interface linguistic equivalents.

46) It is important in scoping an Open-edi Scenario to specify at the outset whether or not external constraints apply to the business transaction being modelled. If there are no external constraints, i.e., the only constraints are those which the buyer and seller mutually agree to, then such an Open-edi scenario can often serve as a generic re-useable 'lego' block in support of those Open-edi scenarios which do include external constraints.

47) The completion of ISO/IEC 18038 - *Information technology - Identification and Mapping of Various Categories of Jurisdictional Domains* will be of assistance in development of "standard" template attributes for identification of external constraints.

48) Often referred to as “B2C”, i.e., as in “business to consumer”. Here it is understood that a “consumer” is an “individual” and not an “organization”.

49) Often referred to as “B2B” i.e., as in “business to business”.

IT-Interface		Linguistic Human-Interface Equivalents			Spare
Scope Tag ID Code (1)	Decision Code (2)	Name (English) (3)	Name (French) (4)	Name (Other) (5)	 (6)
1061		Mediated Business Transaction Model[50)]			
1065		Defined Market Model			
1066		Undefined Market Model			
1070		Immediate Settlement Model			
1071		Separate Settlement Model			
		AGENTS AND THIRD PARTIES			
1110		**Business Transaction allows for Agents**[51)]			
1111		Buyer Agent			
1112		Seller Agent			
1130		**Business Transaction allows for Third Parties**[52)]			
1131		By mutual agreement of buyer and seller (as internal constraints only)			
1132		external constraint(s) Mandated			
1200		**PROCESS COMPONENT: All five sets of distinct activities covered.**			
1210		**Planning**			
1215		Public information on goods/services provided by a seller			
1220		Public information on goods/services needed by buyer			
1225		Predefined/referencable Catalog			

50) Primitive means business transaction to be modelled as an Open-scenario involves only buyers and sellers.

51) It is assumed that business rules and constraints relevant to the ability of the two primary parties (the seller and buyer), to be able to delegate all or part(s) of their role and associated commitment(s) to Agent(s) will be specified as part of "Role Attributes", see further below 8.4.2.5.

52) It is assumed that business rules and constraints pertaining to the ability of the two primary parties (the seller and buyer), to agree to delegate all or part(s) of their role(s) and associated commitment(s) to a "third party(ies)" will be specified as part of "Role Attributes", see further below 8.4.2.5.

IT-Interface		Linguistic Human-Interface Equivalents			Spare
Scope Tag ID Code (1)	Decision Code (2)	Name (English) (3)	Name (French) (4)	Name (Other) (5)	 (6)
1230		Buyer initiated goods/service request			
1235		Seller initiated goods/service offer			
1240		Predefined Market Model			
1250		**Identification**			
1255		Identification for information exchange purposes only (e.g. an address)[53]			
1260		Identification of Person able to make commitment[54]			
1265		Identification of Person as "individual"			
1270		Identification of Person as "consumer"			
1300		**Negotiation**			
1305		Monetary Payment Involved			
1310		Immediate Settlement Model			
1315		Separate Settlement Model payment			
1350		**Actualization**			
1355		**Immediate Settlement**			
1360		Separate Settlement			
1400		**Post-actualization**			
1405		Includes warranties			
1410		Includes records retention			

53) A typical example here is an e-mail address or a P.O. box address.

54) This is usually required for the Negotiation step and certainly for Actualization.

IT-Interface		Linguistic Human-Interface Equivalents			Spare
Scope Tag ID Code (1)	Decision Code (2)	Name (English) (3)	Name (French) (4)	Name (Other) (5)	 (6)
1415		Includes staying in contact with buyer (e.g., defect and recall notification)			
1500		**DATA COMPONENT**			
1505		Predefined and Structured, i.e., code sets			
1520		Data integrity of any IB			
1525		Retention /latency of any IBs			
1600		**Business requirements on FSV – No external constraints**[55)]			
1610		Service: Information Bundle Integrity			
1615					
1620		Service: Confidentiality of IB contents			
1625		Service: Non-repudiation of receipt			
1630		Service: Proof of Time IB creation[56)]			
1635		Service: Notarization of IBs			
1640		Service: Quality of Service (QoS)			
1700		**EXTERNAL CONSTRAINTS**[57)]			

55) See further above 6.5.2.

56) Often referred to as time-stamping services.

57) Addressee work on the issue of jurisdictions as it impacts specification of external constraints on business transactions (being able to identify and reference laws and regulations impacting scenarios and scenario components) addressed in ISO/IEC 18038 - Information technology - *Identification and Mapping of Various Categories of Jurisdictional Domains"*.

8 Rules for specification of Open-edi scenarios and their components

8.1 Introduction and basic principles

This clause presents the rules for specification of Open scenarios for Open-edi scenario attributes and attributes of scenario components, i.e., roles and Information Bundles (IBs) and Semantic Components.

A key thrust of the Open-edi approach is to enable Persons to participate in EDI with minimal prior agreement about the way that the data is to be exchanged among them.[58] In contrast with current forms of electronic data and document interchange, this means that both the data and the contexts have to be predefined, structured and standardized. More precisely the computer systems of Open-edi partners need to be able to handle incoming messages[59] as Information Bundles (or sets of Information Bundles) automatically. Specification of the "message handling" process is a key element of an Open-edi scenario. The key difference with present day EDI (and EDI message handling) is that Open-edi not only (1) describes how a single message needs to be interpreted as well as describing how several messages relate with each other; but also, (2) specifies the same in a standardized and computer interpretable manner.

It is not the purpose of this standard to develop the scenarios themselves. However, electronic data interchanges representing commitment and information exchange in a business transaction among autonomous parties to be computer interpretable and interoperable they must:

1) explicitly stated and defined business requirements; and,

2) state the specification of these business operational requirements in a formal way which can "be understood" by an automated information system. This includes ensuring that the requirements of OeDTs are also defined. {See 6.5}

Open-edi scenarios are composed of several building blocks. They specify the information exchanges and commitments made that govern a transaction conducted among a set of Persons (also referred to as Open-edi Parties). Roles and Information Bundles have been introduced in the Open-edi Reference Model (ISO/IEC 14662). Roles specify the behavior of the Open-edi Parties, whereas the Information Bundles specify the semantics of the information exchanged, including the commitments made. In order to connect the roles and Information Bundles together, attributes at the Open-edi Scenario level are defined as well. In this Clause the structure of these concepts is further defined in terms of the attributes that need to be defined and the formal specifications of some of the components. This will lead to a stipulation of the requirements on Formal Description Techniques (FDTs) that are to be used for the formal specification of roles and Information Bundles.

Although all the attributes must be specified, the presence and conditions of each attribute may vary depending on (1) the classes of constraints of the business transaction, {see 6.1.6}, the scenario and its components; (2) the agreed upon business requirements and rules; and/or, (3) the applicability of external constraints on business requirements, i.e., laws and regulations. The rules and codes for specifying the presence and condition of the attributes of scenario components and their attributes are stated in Clauses 9 and 10 below.

It is important to note that roles model the externally visible behavior among Open-edi Parties.

Rule 58

It is up to users to determine and define the boundary between the internal and external behavior associated with a role.

58) This includes EDI-based applications popularly known as e-commerce, e-business, e-travel, e-government, e-logistics, e-learning, e-medicine, etc.

59) The term "message" is currently defined with many different meanings and uses within ISO and ISO/IEC ranging from "message" EDI message in (ISO 9735 EDIFACT and its "Implementation Guidelines") to "message" as in message handling (ISO/IEC 78498, 9594 and 10021 series of standards and their equivalent ITU X400 and X.500 series of Recommendations).

The modelling of roles in a scenario should allow for an Open-edi Party to be seen as a single entity regardless of whether it has small a or huge internal process. Thus, if the Person is an “organization” or “public administration” subtype, a number of organization parts or organization Persons within an "organization" or "public administration", each with a smaller internal process, it will still be seen as a single entity.[60)]

The concept of external visible behavior is related to business processes necessary to achieve the mutually agreed upon goal of business transaction and the associated incoming and outgoing Information Bundles. This is illustrated in Figure 25 below.

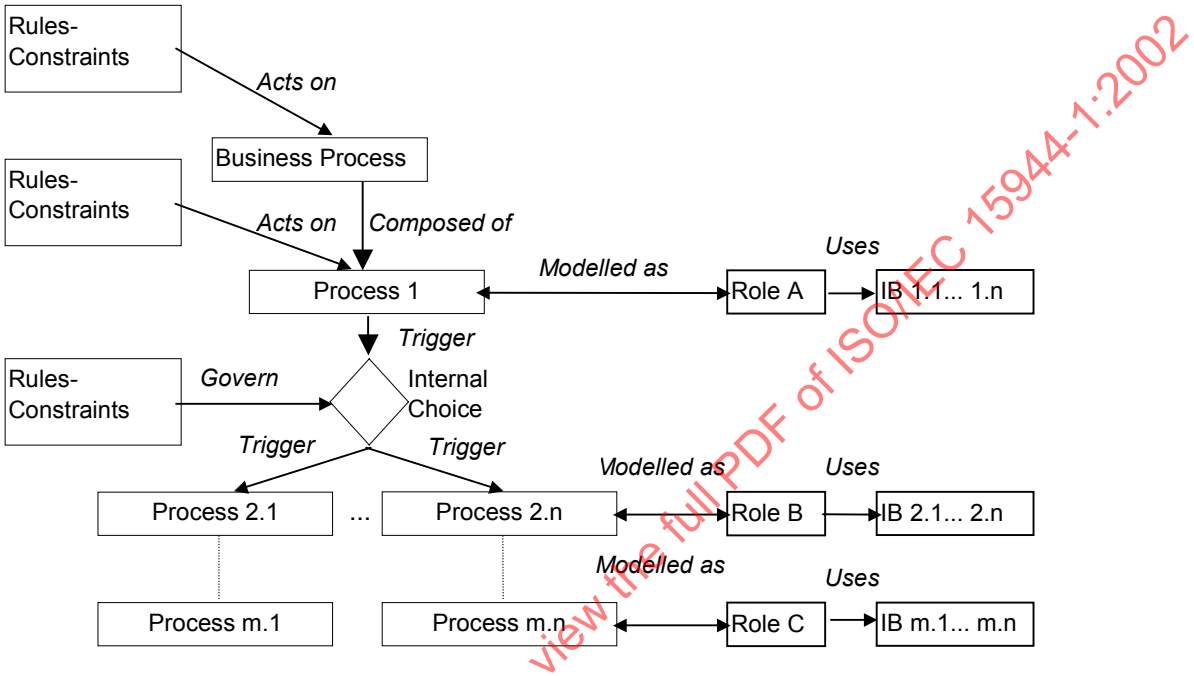

Figure 25 — Illustration of operation of Open-edi from the point of view of an autonomous organization in terms of the operation of rules, constraints and scenario components

Figure 25 represents an operation of Open-edi from the point of view of an autonomous Person, who wants to use it to support a particular business process. The outside world may have constraints on this process (for instance particular jurisdictions may regulate certain activities or require information to be exchanged). Also the Person may have internal rules governing their business processes in general. Both types of constraints are represented in the boxes labelled "Rules-Constraints".

The business process itself may consist of a number of processes. After the completion of each process, a new state is reached and some internal choice will be made to decide which process will be executed next. This decision is based on the result of the previous process using an internal rule-base. The choice can result in multiple processes being executed in parallel or in a number of alternative processes being selected and executed in series.

60) Roles in scenarios involving public sector (and associated Information Bundles) tend to have more extensive externally visible behavior than those among private sector organizations. Among private sector organizations, the boundary between externally visible and internal behavior is often determined by factors of degree of commonality in (international) business practices, industry sector conventions, degree of trust in business relations, etc.

The Open-edi scenario is only concerned with those parts of these processes that are related to the exchange of IBs among roles. This particular information will be specified in the role description. Thus the role description contains the knowledge or information required to determine the inter-dependencies of the Information Bundle exchanges. This also means that the entire specification of the Open-edi relevant part of the business process will be done by multiple roles which are inter-connected within a scenario (using scenario attributes). A different valid approach that can be implemented is to define the role as the combination of all these processes, and call the different subsets differently, for instance episodes or activity units.

Although it seems that this is a rather fundamental decision to make, the view can also be taken that this is only an identification (and naming) issue if it is assumed that multiple levels of decomposition and types of inheritance can take place at the role level. From a modelling perspective it is not really relevant whether something is designated a role, sub-scenario or episode, since the information that is captured in the models is the same (sending-receiving of IBs). The relationships among all these modules must be defined unambiguously where modularity, inheritance or hierarchical decomposition is required.

Although Figure 25 shows that a specific process is implemented by a specific role, it may be the case that actually several alternative processes can be used for this purpose. For instance, the process "get product information" can be implemented by a single IB exchange of a prospective buyer with the seller or by multiple exchanges of smaller IBs as part of a session (or sets of sessions as a dialogue). These two cases would probably be covered by different role descriptions with the same purpose.

The resulting scenario will consist of models for each Open-edi Party involved in the business transaction, thus specifying the overall exchange of Information Bundles. (The processes in one organization should have "mirror" processes in the other organization to make the entire business transaction work. If one party sends an IB but another party does not know about it, the scenario definition is clearly incorrect).

This introduction concludes by noting the important issue of the reusability of Open-edi scenarios and their components. Since all these components must be provided with unique, unambiguous and linguistically neutral identifiers, reusability is created by the design. Reusability of Open-edi scenarios is facilitated through the reusability of its components. If a new Open-edi scenario is to be developed using an existing scenario, scenario developers can simply reuse the components of the existing scenario.

Reusability of scenarios as well as scenario components is embedded in:

1) The specification of scenarios and scenario components from a BOV perspective at a level of granularity appropriate to the goal of the business transaction and with the degree of explicitness required to transform these business requirements into a model using formal description techniques, i.e., using an OeDT.

2) The OeDT model serving a two-fold purpose/goal; namely:

   i) ensuring that all the business requirements pertaining to a scenario and scenario components (a) are unambiguous and conform to the level of certainty and completeness required by the goal of the business transaction being modelled; and, (b) can interwork, i.e., there are no logical inconsistencies or gaps.

   ii) ensuring that (a) all the information of the nature of demands on the Functional Service View (FSV) is specified in the BOV aspects of a scenario and its components and modelled in the associated OeDT; and, (b) from a FSV perspective, the BOV requirements are unambiguous, i.e., the level of certainty is appropriate to the goal of the business transaction and resulting demands on the FSV result in no logical inconsistencies or gaps.

Reusability of scenarios and scenario components is an achievable objective because existing (global) business transactions, whether of a verbal or paper-based nature, already consist of "standard" reusable components unambiguously understood among participating existing parties (even though such "standard" components are not yet specified through the use of FDTs). Similarly, earlier and present experience with syntaxes for electronic data interchange whether ISO 9735 (EDIFACT) or ANS X.12-based and now “XML” have demonstrated the need for and feasibility of reusable components.

Use of this standard will ensure that such reusability is embedded in the formal description techniques used for specifying the components.

8.2 OES demands on interoperability

The term interoperability is used in the context of this standard to mean the ability for all the parties using a scenario or any of its components to be able to understand the meaning of those components. Further, if one of the potential parties to the scenario takes part in the scenario, in doing so it must be able to carry out the minimum functional requirements as specified by the scenario or any of its components.

These requirements must be considered, therefore, at several levels:

a) are the contents of a scenario component represented in a format that can be understood by the recipient such that they can be converted into any necessary internal format for the purpose of internal processing? Note: This can include being able to represent the information in a human readable format.

b) are the semantics of the scenario component clear? (A field with a description of 'DATE' would not be considered clear since it is not possible from that information alone to know if the format of date is Julian, Gregorian, or following another allowable representation. Even if the format is known, is it the date of an event that has happened or is yet to take place?) In registering scenario components it is essential to include sufficient descriptive information about the semantic meaning of the information content such that the meaning for a recipient is clear.

c) are the technical contents of a scenario component formatted or represented according to a recognized standard for encoding (a currency table, international country code, registered cryptographic algorithm)?

d) are the security requirements expressed in a form and format that can be complied with?

e) are the constraints that are specified acceptable?

8.3 Rules for specification of Open-edi scenarios and scenario attributes

8.3.1 Open-edi scenario rules

The definition of "Open-edi scenario" is:

Open-edi scenario
a formal specification of a class of *business transactions* having the same business goal

Rule 59:

An Open-edi scenario is specified through roles, Information Bundles and scenario attributes.

Rule 60:

An Open-edi scenario is composed of two or more roles.

NOTE In the Planning phase of a business transaction {See 6.3.2 above}, the second role is often assumed to be played by a responding Open-edi Party, i.e., provided for as an expected role. For example, the posting of an electronic catalogue by a seller assumes the existence of prospective buyers. The posting of a request for quotation by a buyer assume the existence of prospective sellers. In either case, an agreed upon termination of a business transaction can be the expiry of a specified date/time (e.g., offer or request valid until YYYY-DD-MM).

Rule 61:

A business transaction may be specified as one or more Open-edi scenarios.

NOTE For example, a model of a business transaction spanning several jurisdictions involving customs clearance, multi-modal transport and several banks involved in financial transfers could be specified through several interlinked scenarios.

Rule 62:

Aspects related to a business transaction which are not covered in rules and specifications of a Role or an Information Bundle (and their attributes) shall be specified through Open-edi scenario attributes.

8.3.2 Open-edi scenario (OeS) attributes and associated rules

Open-edi Scenario Attributes are:

a) OeS identifier

b) OeS name(s)

c) OeS purpose

d) OeS set of roles

e) OeS set of Information Bundles

f) OeS set of requirements on Open-edi Parties

g) OeS set of external constraints on business requirements, i.e., laws and regulations

h) OeS inheritance identifier(s) and cross-references

i) OeS security service requirements

j) OeS communication – quality of service requirements

k) OeS role requirements and constraints

l) OeS dependency among roles in a scenario

m) OeS dependency among Information Bundles in a scenario

n) OeS dependency among Semantic Components of different Information Bundles

o) OeS demands on Open-edi Parties

p) OeS demands on Open-edi Support Infrastructure

With respect to these Open-edi scenario (OeS) attributes the following rules apply.

8.3.2.1 Scenario attribute: OeS identifier

Rule 63:

The Open-edi scenario Identifier shall be unique, linguistically neutral, unambiguous and referenceable. It is a mandatory attribute.

8.3.2.2 Scenario attribute: OeS name(s)

Rule 64:

OeS Name is the designation of the Open-edi scenario Identifier by a linguistic expression. More than one OeS Name as equivalent linguistic expressions may be associated with an OeS Identifier.

NOTE 1 It is necessary to be able to support localization, multilingualism, cross-sectorial and cultural adaptability requirements. An Open-edi scenario formal specified and identified through its OeS identifier will likely have associated with it one or more designated equivalent linguistic expressions, i.e., names, labels, etc., from a human interface perspective, (e.g., as "aliases").

NOTE 2 The use of a specific linguistic equivalent expression as a name for an OeS attribute may be prescribed in a jurisdiction.

8.3.2.3 Scenario attribute: OeS purpose

Rule 65:

The OeS attribute "Purpose" specifies the scope of the Open-edi Scenario.

NOTE 1 The use of the term "scope" indicates the need for preciseness and specificity.

NOTE 2 The focus and boundaries of the OeS Purpose can be defined using inclusionary rules and definitional statements as well as exclusionary rules.

8.3.2.4 Scenario attribute: OeS set of roles

Rule 66:

The set of Roles applicable to the scenario shall be specified and referenced through their Role Identifiers.

Rule 67:

One shall state which roles are mandatory, conditional, or mandatory subject to a conditional (See further Annex B).

Rule 68:

Where applicable, constraints on the same Open-edi Party playing more than one of the roles in the set of roles applicable to the OeS shall be specified.

See further in Annex B.

8.3.2.5 Scenario attribute: OeS set of Information Bundles

Rule 69:

The set of IBs applicable to the scenario shall be specified through the unique identifiers of the IBs.

Rule 70:

If applicable, one should state which IBs are mandatory, conditional, or mandatory subject to a conditional.

Rule 71:

Where applicable, constraints on IBs pertaining to roles in the OeS shall be specified.

8.3.2.6 Scenario attribute: OeS set of requirements on Open-edi Parties

Rule 72:

The business requirements, rules and practices applicable at the scenario level shall be specified. This specification shall be stated at a level of detail to ensure that there is no ambiguity in the commitments among Open-edi Parties at the scenario level.

Rule 73:

Business constraints, if any at the scenario level, pertaining to Open-edi Parties and scenario components shall be specified. All of these shall be accounted for in scenario components, i.e., roles and/or Information Bundles.

NOTE 1 Business constraints are those which Persons, as individuals and/or organizations, mutually agree to impose upon themselves (as an exercise in "coordinated autonomy").

NOTE 2 External constraints are those which are imposed on aspects of a business transaction. A primary source of external constraints are jurisdictions, (e.g., those of a geopolitical nature, category of services, types of commodities, etc.).

8.3.2.7 Scenario attribute: OeS set of external constraints on business requirements, i.e., laws and regulations

Rule 74:

Requirements or constraints arising from applicable laws or regulations at the scenario level shall be explicitly stated including the source jurisdictions.[61)]

Rule 75:

Where multiple laws and regulations apply at the scenario level, the constraint applicable shall be integrated.

NOTE 1 For scenarios developed at the internal constraints only of the business transaction model, these scenario attributes will not apply.

NOTE 2 Where a scenario incorporates external constraints the designer should consider modelling these using an OeDT and having the results reviewed by the relevant jurisdiction(s).

8.3.2.8 Scenario attribute: OeS inheritance identifier(s) and cross-references

Rule 76:

The Scenario attribute is used when:

a) a scenario is a customized version of a more generic scenario; and/or,

b) a scenario is built using other scenarios as parts of its scenario.

NOTE 1 An example of Rule 76.a) would be where a generic (general) multi-modal transport logistic scenario is used as the basis for a transport scenario customized for a specific mode of transport.

NOTE 2 An example of Rule 76.b) would be where a transport delivery scenario is combined with a (terms of) payment scenario, (e.g., for C.O.D. where the transporter also is responsible for the role involving collection of payment).

61) To address laws and regulations IEC JTC1/SC32 is addressing the issue of jurisdictions and their impacts on the specification of external constraints on business transactions. ISO/IEC 18038 — *Information technology — Identification and Mapping of Various Categories of Jurisdictional Domains"* directed at being able to identify and reference laws and regulations impacting scenarios and scenario components.

8.3.2.9 Scenario attribute: OeS security service requirements

Rule 77:

Security service requirements that have to be satisfied at the scenario level shall be stated including non-applicability {See further Annex B}.

Examples of security service requirements in relation to the scenario include:

EXAMPLE 1 Compliance – what security policy must be complied with,

EXAMPLE 2 Standards required – what standards are being implemented in support of compliance,

EXAMPLE 3 Actual mechanisms – which specific methods and techniques are being invoked/supported in support of the requirements.

8.3.2.10 Scenario attribute: OeS communication - quality of service requirements

Rule 78:

Quality of service requirements for telecommunication services if applicable at the scenario level should be stated here.

This attribute is required when a specific quality of service must be available to the role of an Open-edi Party to carry out the specified function. Examples include:

EXAMPLE 1 Having the ability to receive information sent at a minimum speed for the transfer to be possible/reasonable (broad band streaming where real-time video is to be transmitted).

EXAMPLE 2 Possessing a specific device (such as an iris scanner, a fingerprint reader, a graphics tablet, a photographic negative scanner, etc.).

EXAMPLE 3 Having a specific human authentication form of connection (real time or store-and-forward) in order to provide the speed of response required for the scenario (or scenario component).

8.3.2.11 Scenario attribute: OeS role requirements and constraints

Rule 79:

This attribute is used to identify requested and/or undesirable configurations of Open-edi Parties playing roles (or combinations of roles) within a scenario.

8.3.2.12 Scenario attribute: OeS dependency among roles in a scenario

Rule 80:

Dependency(ies) among roles (including sequencing) in a Scenario, if any, shall be specified.

8.3.2.13 Scenario attribute: OeS dependency among Information Bundles in a scenario

Rule 81:

Dependency(ies) among Information Bundles (including sequencing) in a Scenario, if any, shall be specified (See further Annex B).

8.3.2.14 Scenario attribute: OeS dependency among Semantic Components of different Information Bundles

Rule 82:

Dependency(ies) among Semantic Components (including sequencing) among Information Bundles in a Scenario, if any, shall be specified (See further Annex B).

8.3.2.15 OeS demands on Open-edi Parties

Rule 83:

OeS demands on Open-edi Parties which are in addition to those specified for the roles and/or Information Bundles comprising an OeS must be specified.

NOTE 1 It is assumed that OeS demands on Open-edi Parties are the sum of the demands of the roles and IBs comprising an OeS.

NOTE 2 It may well be that the required interworking of the demands of the roles and IBs comprising an OeS result in added demands which must be specified at the OeS level.

Rule 84:

Where a specific trade scenario or settlement scenario is mandatory to taking part in the scenario it shall be specified as a demand upon Open-edi Parties.

8.3.2.16 OeS demands on Open-edi infrastructure

Rule 85:

OeS demands on Open-edi infrastructure which are in addition to those specified for the roles and/or Information Bundles comprising an OeS must be specified.

NOTE 1 It is assumed that OeS demands on Open-edi infrastructure are the sum of the demands of the roles and IBs comprising an OeS.

NOTE 2 It may well be that the required interworking of the demands of the roles and IBs comprising an OeS result in added demands which must be specified at the OeS level."

8.4 Rules for specification of Open-edi roles and role attributes

8.4.1 Rules governing roles

A "role" is defined as:

Role
a specification which models the external visible behavior (as allowed within a scenario) of an *Open-edi Party*. A role contains the formal description of this behavior, (e.g., business process), as well as the list and specification of the associated attributes

A role usually represent a business function and associated commitments, obligations and responsibilities of a Person (individual or organization) as well as associated common business processes. An Open-edi role is the (re-useable) computer interpretable and processable specification of the same instantiated by a Person as an Open-edi Party.

The BOV rules governing "role" include:

Rule 86:

Open-edi Parties take on commitments based on role commitment.

Rule 87:

An Open-edi Party may play one or more roles and a role may be played by one or more Open-edi Parties.

Rule 88:

Internal and external behavior shall be associated with a role.

NOTE 1 It is up to users to determine and define the boundary between internal and external behavior associated with a role.

NOTE 2 Modelling of roles should allow for an Open-edi Party to be seen as a single entity with a huge internal process or as a number of individual entities, i.e., as organization parts and organization persons, each with a smaller internal process.

NOTE 3 The concept of role is related to specifying business processes and Information Bundles.

{See Figure 25 above}

Rule 89:

A role shall be a component of one or more scenarios.

NOTE A role can only exist within the context of a scenario.

Rule 90:

The behavior of a role shall be specified by states, transitions, events, actions and/or internal functions.

Rule 91:

The role attributes shall be clearly defined and specified to complete a role specification using plain text.

NOTE The "using plain text" requirements has a three-fold purpose; namely:

- to ensure that the Business Operational View of the Open-edi scenario is clearly expressed and understood by persons representing user requirements and/or Open-edi Parties;
- to ensure that business requirements are stated independently of any modelling techniques or language. (The formal specification of a role via an OeDT ensures computer process-ability);
- to ensure that commitments and obligations associated with a role are fully and clearly understood by persons undertaking a role as an Open-edi Party in an instantiation of a scenario. (See further Annex B)

Rule 92:

The formal specification of a role is to be defined using an Open-edi Description Technique (OeDT).[62)]

62) In the informative Annexes to this standard the FDT used as an OeDT is Universal Modelling Language (UML) which is currently being progressed as an international standards ISO/IEC 19501.

8.4.2 Role attributes and associated rules

Role Attributes are:

a) Role identifier

b) Role name(s)

c) Role purpose

d) Role business goal(s)

e) Role business rules and constraints

f) Role inheritance identifiers and cross-references

g) Role external constraints on business requirements, i.e., laws and regulations

h) Role security service constraints

i) Role communications and quality of service requirements

j) Role demands on Open-edi Support Infrastructure

8.4.2.1 Role attribute: role identifier

Rule 93:

Each role shall have an identifier. The role identifier shall be unique, linguistically neutral, unambiguous and referenceable.

Rule 94:

The role ID shall include the OeS Identifier of the scenario to which the role is a part.

This has implications on registration of roles.

8.4.2.2 Role attribute: role name(s)

Rule 95:

A Role may have one or more names. A role name is the designation of role ID by a linguistic expression. More than one role name (as equivalent linguistic expressions) may be associated with a role ID, (e.g., as "aliases").

The specific linguistic expression used to designate a role ID can be:

a) The results of an agreed upon common business convention a practice (internationally or by business sector); or,

b) Prescribed by laws and regulations of a jurisdiction (at international, regional, or national level, industry sector, etc.).

NOTE This is developed further in 15944-2 as part of scenario registration procedures.

8.4.2.3 Role attribute: role purpose

Rule 96:

The objective(s) of the business function shall be specified as the role purpose.

8.4.2.4 Role attribute: role business goal(s)

Rule 97:

The role business goal shall explicitly state the business process(es) of the role including the agreed upon conclusion(s) of the role.

Rule 98:

The role business goal attribute shall specify the rights and duties, commitments, resulting obligations, and accountabilities of the Open-edi Parties participating in the role.

The specification of the role business goal must be stated at a level of detail to ensure that there is no ambiguity in the commitments, rights and obligations as well as accountabilities among the Open-edi Parties at the role level.

8.4.2.5 Role attribute: role business rules and constraints

Rule 99:

Predefined and accepted business rules and associated practices applicable to a role shall be specified as role business rules and be appropriately referenced.

NOTE 1 Existing world trade among private sector entities, most public/private sector business transactions, etc., are based on known common business practices. Primary examples here are the International Commercial Terms (INCOTERMS) of the International Chamber of Commerce, that of an IATA qualified/certified freight forwarder or a financial institution which is a member of SWIFT.

NOTE 2 Such commonly known and accepted business practices or roles need only to be specified once using OeDT to be able to serve as referenceable and reusable Open-edi roles.

Rule 100:

Additional business practices pertinent to a role shall also be specified as role business rules.

Rule 101:

Constraints, if any, on an Open-edi Party being able to play a role shall be specified.

The condition of there being (a) no constraints, (b) specified internal constraints[63)], and/or (c) external constraints on a role shall be explicitly stated. {See further Annex B.}

NOTE ISO/IEC 14462 Open-edi Reference Model includes the example of a human organ transplant scenario. The example identified constraints on an Open-edi Party being able to play, i.e., instantiate, a specific role. Not any Open-edi Party can take the role of a medical doctor, a licensed bank, an insurance broker, an air mode transporter, a telecommunications carrier, etc.

8.4.2.6 Role attribute: role inheritance identifiers and cross-references

Rule 102:

Use of a role as part of a role shall be specified by a cross-reference to the used role.

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63) A common requirement in the modelling of a purchase transaction is that both the Person in the role of seller must be able to receive payment via an acceptable credit/debit card and the Person in the role of buyer must be able to make. Payment using a credit/debit card acceptable to the buyer.

The attribute is to be utilized when:

a) a role is a customized version of a more generic role; and/or

b) a role is built using other roles as parts of its role.

An example of Rule 102a) would be where a generic role is used as the basis for a customized role, (e.g., a generic transport role customized for transport of materials of a radioactive nature, or of a perishable commodity, etc.).

Another example of Rule 102a) would be where a (generic) role developed at Level 0 of the Business Transaction Model is used as the basis for specifying the same role involving public administration constraints of a regulatory nature.

An example of Rule 102b) would be where a role combines/integrates two or more "granular" roles. This is a matter of business needs and perspectives.

8.4.2.7 Role attribute: role external constraints on business requirements, i.e., laws and regulations[64)]

Rule 103:

Any external constraints arising from laws or regulations to any aspect of the role and its attributes shall be identified and stated including the reference/source of the applicable law or regulation, i.e., qualifications for a role, prescribed behavior, restrictions on the delegation of a role, etc.

For (generic) roles development of the business transaction model with no external constraints, i.e., internal constraints only, this attribute will not be applicable. {See Annex B}

Roles whose existence are due to meet requirements of external constraints of the nature of laws and regulations should be so identified, the requirements stated explicitly (so that these can be formally specified using an OeDT) and source referenced.

Where multiple laws and regulations serve as external constraints or requirements on a role, the role specification is deemed to be an integration of such a combination of external constraints and requirements.

8.4.2.8 Role attribute: role security service requirements

Rule 104:

Security service requirements at the role level shall be stated as one of:

1) Shall not be applied

2) May be applied if available, or

3) Are mandatory

In cases 2 and 3, the specific security functions shall be specified.

64) Note: ISO/IEC JTC1/SC32 is addressing the issue of jurisdictions as it impacts specification of external constraints on business transactions. ISO/IEC 18038 - Information technology - *Identification and Mapping of Various Categories of Jurisdictional Domains"*. Is being developed to help identify and reference laws and regulations impacting scenarios and scenario components.

Annex E is applicable here.[65)]

Examples of role based security requirements of an Open-edi Party include:

— having access to specific cryptographic algorithms to enable the receipt of information to be of value;

— having a role authorized by an appropriate regulator and required for the performance of the specified function(s);

— having a specific human authentication characteristic, i.e., that of a natural person irrespective of its role in a business transaction, (e.g. as an individual or organization person) available for checking (such as a registered fingerprint, voice print, or other biometric-based identification technique for a human being, a natural person).

NOTE Security service requirements may depend on the content or data values of the IBs associated with a role. This rule requires that such conditional dependencies shall be explicitly stated. {See Annex B}

8.4.2.9 Role Attribute: role communications and quality of service requirements

Rule 105:

Quality of service applicable at the role level shall be stated under this attribute, e.g., availability, equipment that can process at the proper rate or in the required manner.

8.4.2.10 Role demands on Open-edi Support Infrastructure

Rule 106:

Role demands on Open-edi Support Infrastructure applicable at the role level shall be stated under this attribute.

Role demands may include:

— Method of authenticating identity,

— Technical method for compliance with constraints,

8.4.3 Role demands on Open-edi Parties

Annex B is applicable here.

Rule 107:

Restrictions on how roles may be assumed by OePs shall be stated.

Examples include:

a) Minors cannot purchase alcohol,

b) Residency requirements to undertake certain business activities.

Role demands on Open-edi Parties represent a set of role attributes which require the following to be specified:

a) IDs for these demands stated as constraints on role behavior;

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65) 6.5 "Business Requirements on FSV" is applicable here.

b) Constraints on OeP characteristics;

c) Constraints on maximum number of OePs playing a role;

d) Constraints imposing a role to be conditional;

e) Constraints on differing OePs playing this role;

f) Interdependencies of roles. (e.g., Role 10A5 requires Role "B15" to be present).

8.4.4 Interoperability demands among roles shall be stated

Interoperability demands among roles shall be specified. Annex B is applicable here. The following are required to be specified:

a) IDs for role demands on interoperability;

b) IBs for the role;

c) IB sequences/dependencies;

d) Timer expiration

e) Error conditions;

8.4.5 Role states

States of a role shall be specified. Annex B is applicable here. States must conform to the following rules:

Rule 108:

A role state specifies the states of a role.

Rule 109:

A role state shall belong to only one role.

Rule 110:

A role state changes upon the occurrence of an event.

Rule 111:

A state may be a current state to one or more transitions.

Rule 112:

A state may be the next state to one or more transitions.

Rule 113:

A state is specified by the following role state attribute types:

1) Role state identifier (Mandatory)

   The role state identifier shall be unique, linguistically neutral, unambiguous and referenceable.

2) Role state name(s) (conditional or optional)

3) Role state definition (mandatory)

8.4.6 Role transitions

A "role transition" is defined "as the process of changing from one state to another within a given role".

Rule 114:

Within an Open-edi Scenario, a role transition is defined by:

a) The current state of the role;

b) The event which triggers the transition;

c) The actions started by this transition;

d) The next state of the role after this transition.

Rule 115:

A transition shall belong to only one role.

Rule 116:

A transition may be triggered by only one event.

Rule 117:

A transition may start one or more actions.

Rule 118:

A transition may have one current state and may have one next state.

Rule 119:

A role transition is specified by the following attribute types:

a) State/transition matrix row number of a state/transition table;

b) User specified sequence number of an Information Bundle sequence chart;

c) Other.

8.4.7 Role events

A role event is a stimulus for a role to take action, e.g., receipt of an Information Bundle.

Annex B is applicable here.

Rule 120:

A role event triggers a transition.

Rule 121

A role event is triggered by only one Information Bundle or by only one internal behavior/function of a role.

Rule 122:

A role event is specified by the following Role Event Attribute Types:

a) role event identifier (mandatory)

The role event identifier shall be unique, linguistically neutral, unambiguous and referenceable

b) role event name(s): (conditional or optional)

c) role event definition: (mandatory)

8.4.8 Role actions

Rule 123:

A role action is started by a transition.

Rule 124

A role action sends one or more Information Bundles and/or triggers one or more internal functions.

Rule 125:

A role action is specified by the following role action attribute types:

a) role action identifier: (mandatory)

The role action identifier shall be unique, linguistically neutral, unambiguous and referenceable.

b) role action name(s): (conditional or optional)

c) role action definition: (mandatory)

8.4.9 Role internal function

An internal function is a procedure which describes the internal behavior of a role, i.e., behavior deemed to be internal behavior in the context of the business transaction as specified in a scenario.

Rule 126:

An internal function may trigger one event and may be triggered by one or more actions.

NOTE 1 It may well be that business functions which are considered external behavior of roles in one Open-edi scenario may in another scenario be considered internal functions.

NOTE 2 An "internal function" can be used to describe the "WHATs" of the internal behavior of a role without specifying the "HOWs", i.e., as a set of requirements one party expects another party to undertake prior to the transmission of an Information Bundle to note that the required business function has been completed.[66)]

NOTE 3 It is up to those modelling a role (and then registering it for re-use) to decide whether internal functions need to be included.

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66) In a simple example, an Information Bundle may be found only between a role and an internal function (e.g. an "order timeout"). A more advanced example is a buyer role which accepts a list of alternative sellers from the buyer internal function. The buyer role may send order requests to the sellers in the list, and accept the first one which can deliver the order. In this case, different Information Bundles may exist between role and internal functions. {See further ISO/IEC JTC1 SC32/WG1 N040 Trond Johanson "*Roles and internal functions",* 196-10-07.

8.4.10 Role demand on Open-edi Support Infrastructure

Rule 127:

Role demand(s) on Open-edi Support Infrastructure, if any, shall be specified.

8.5 Rules for specification of Open-edi Information Bundles (IBs) and IB attributes

8.5.1 Rules governing Information Bundles

An Information Bundle (IB) is defined as:

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

Organizations that have to process Information Bundles they have never dealt with before need therefore to be able to determine the meaning of them. The key criteria for this process are that the sender and the receiver of such IBs have the same understanding about the semantics of the data they have exchanged. For this purpose the Open-edi Reference Model notes that a SC may be atomic or composed of other SCs.[67)]

Furthermore, the function of the Information Bundle as a whole needs to be completely understood and representable as well. For instance, depending on the context in which it is sent, a purchase order may have the function of an offer or an acceptance. The semantics of the underlying data is the same in both these cases. It seems that two options exist to solve this. The first option assumes that this knowledge can be represented as state changes inside the role description. Another approach would be to model these functions explicitly and associate this information with the Information Bundle instead of the role. The latter could be done by using theory from linguistic philosophy (the so-called Speech Acts) which identifies some basic functions of utterances (such as request, confirm, order etc.). This is an open issue.

Whatever the approach, it is necessary that the Open-edi Description Technique include a formal way to describe the semantics of the content of Information Bundle. For example the role will need in some cases to refer to some values of instances of Semantic Components.[68)]

It is therefore necessary to document the requirements on the OeDT to describe Information Bundles. A second advantage of this approach is that at the Open-edi scenario level, the only information that may be needed is the identification of the Information Bundles and a reference to the repository(ies) where the formal specification of the semantics can be found.

Rule 128:

A formal description of Information Bundle is used to model the semantic aspects of the business information to be exchanged and are constructed using Semantic Components.

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67) What is an atomic component, i.e., an indivisible data element, is dependent on the context. Within one business context and associated goal of a business transaction, a Semantic Component may be considered to be atomic in electronic data interchanges among participating Open-edi Parties. Within another business transaction, this "atomic" Semantic Component may well be considered to be composed of several other SCs. "Atomicity" of Semantic Components is thus a matter of granularity and is context dependent on the business requirements. For example, in one business transaction, an IB pertaining to a client name or a street name address can be represented by a single SC. In another business transaction an IB pertaining to a client name is composed of several SCs, one of which may in turn be composed of several SCs. Similarly, an IB pertaining to the information pertaining to a street number address is composed of many SCs, several of which in turn are composites, i.e., data structures containing multiple more discrete and granular SCs.

68) Take the example of insurance, an Information Bundle which is an accident report and Semantic Components thereof which describe damages. These damages can be car damages or physical injuries. Let us suppose that when there is an accident report to an insurance company, if there are some human beings injured, then an expert must be involved; if not no expert is required. Where an expert is required the description of the role will require reference to a value of a Semantic Component of the Information Bundle.

Rule 129:

An Information Bundle consists of one or more Semantic Components and/or other Information Bundles.

Rule 130:

Information Bundles are the bindings between Semantic Components and the roles.

The sender binds the role to the Information Bundle for the scenario.

The semantic aspects of the business information to be exchanged are best understood by first specifying them in plain text, followed by specification in Formal Description Techniques. Refer to Explanatory Notes for Rule 88.

8.5.2 Information bundle (IB) attributes and associated rules

The attributes of an Information Bundle must be clearly specified (in plain text). Annex B is applicable here. The attribute types of an Information Bundles include the following (and are further explained in the sections which follow):

a) IB identifier (mandatory)

b) IB name(s) (conditional or optional)

c) IB purpose (mandatory)

d) Business rules controlling content of IBs (mandatory)

e) IB external constraints on business requirements governing content of an IB, i.e., laws and regulations (mandatory)

f) IB contents (mandatory)

g) IB security service requirements

h) IB recorded information retention – business rules and constraints (optional)

i) IB recorded information retention - external constraints on business requirements, i.e., laws and regulations (optional, i.e., as applicable)

j) IB validity characteristic (optional)

k) IB dependency among SCs of the same Information Bundle (as applicable)

In addition, there are also requirements for the specification of:

l) IB information for Interoperability

m) IB Demands on Open-edi Support Infrastructure.

8.5.2.1 Information Bundle attribute: IB identifier

Rule 131:

Each IB shall have an Identifier. The IB Identifier shall be unique, linguistically neutral, unambiguous and referenceable.

Rule 132:

The IB Identifier shall be constructed autonomously.

NOTE An IB is composed of one or more Semantic Components forming an IB may have a different meaning and use in the context of one role than in the context of another role.

8.5.2.2 Information Bundle attribute: IB name(s)

Rule 133:

An IB may have one or more names. AN IB name is the designation of the IB ID by a linguistic expression. More than one IB name as equivalent linguistic expressions may be associated with an IB ID, (e.g., as "aliases").

The specific linguistic expression used to designate an IB ID can be:

a) The results of an agreed common business convention or practice (internally or by business sector), i.e., internal constraints only; or,

b) Prescribed by laws and regulations of a jurisdiction (at the international, regional, national, etc., levels, or for an industry sector, etc.), i.e., including external constraints.

8.5.2.3 Information Bundle attribute: IB purpose

Rule 134:

The IB purpose shall be to specify the nature of the contents or concepts of the IB.

As defined in ISO/IEC 14662 the Open-edi Reference Model, an Information Bundle is the formal description of the semantics of the information to be exchanged by Open-edi Parties playing roles in an Open-edi scenario. The IB is used to model the semantic aspects of the business information. Information Bundles are constructed using Semantic Components.

8.5.2.4 Information Bundle attribute: business rules controlling content of IBs

Rule 135:

Any business rules controlling content of an IB shall be identified and the nature and functioning of these rules explicitly stated. The source of such business rules shall also be referenced.

8.5.2.5 Information Bundle attribute: IB external constraints on business requirements governing content or concept(s) of an IB, i.e., laws and regulations

Rule 136:

Any external constraints arising from laws and regulations governing the content of an IB shall be identified, the requirements explicitly stated and the source referenced.

Rule 137:

Any IB created to meet a requirement of external constraints of the nature of laws and regulations should be so identified, the contents of the IB explicitly defined, at the level of granularity required, and the source law/regulation referenced.

8.5.2.6 Information Bundle attribute: IB contents

Rule 138:

Semantic Component IDs and/or IB IDs contained in an IB shall be specified.

For example, IB 25F6 can consist of IB 25F plus one added SC. In a logistics chain, the completion of a role often results in the addition of an IB to the set of IB(s) received and the sending out/forwarding of the IB(s) received with the added SC(s) as a new IB, (e.g., in clearance of goods at customs the key IB that a custom broker needs to complete an instantiation of the customs clearance process is the "release number" from the Customs authority).

8.5.2.7 Information Bundle attribute: IB security service requirements

Rule 139:

Security service requirements that have to be satisfied pertaining to IBs shall be stated including non-applicability {see further Annex B}.

For example, an IB may be required to be kept confidential when exchanged among Open-edi Parties playing roles in an Open-edi scenario. Or authentication may be required.

8.5.2.8 Information Bundle attribute: IB recorded information[69] retention – business rules and constraints

Rule 140:

Requirements for retention of recorded information for an IB, if any, shall be specified as well as which OePs involved in the associated role(s) have the primary responsibility for retaining this recorded information

NOTE For example, a seller may require a buyer to retain the ID of an IB and its recorded information contents issued by the seller to the buyer in relation to a specific good, service, and/or right for the period of time associated with post-actualization aspects of a business transaction.[70] Buyer and seller may agree to use a third party to retain a records retention/archiving service (e.g. as part of a notarial-type service).

8.5.2.9 Information bundle attribute: IB recorded information retention - external constraints on business requirements, i.e., laws and regulations

Rule 141:

Requirements arising from laws or regulations for the retention of recorded information applicable to the IB, if any, shall be explicitly stated and the source(s) referenced.

69) The term “recorded information” is defined in 3.56 above as independent of form, medium of recording or technology utilized.

70) This could be the ID number of the business transaction issued by the seller with respect to the seller’s “return of good policy” which the seller requires the buyer to retain, or a recorded information retention requirement(s) arising from various post-actualization requirements between a buyer and seller (as well as agents or third parties) as applicable (e.g. warranties).

8.5.2.10 Information Bundle attribute: IB time validity characteristics

Rule 142:

IB time validity characteristics shall be explicitly specified.[71)]

The other definition of latency supported by the IB is the time by which the intended recipient(s) of the IB must make the response by the scenario definition to comply with the scenario constraints.

When this use of latency is selected, the time for the scenario defined response must be specified, either as the time period following the sending of the relevant IB, or as the time, as specified by UCT or GPS time, by which the scenario defined response must have taken place.

Other examples of time validity characteristics include response date, delivery date, due date, expiry date, etc.

8.5.2.11 Information Bundle attribute: dependency among SCs of the same Information Bundle

8.5.3 IB information for interoperability

Rule 143:

Interoperability requirements for IBs must be specified.

Interoperability requirements for IBs already identified include:

1) Relationship of SC(s) with IB(s), including specification of dependencies and interdependencies {See further Annex B}

2) List of SCs and their attributes including definitions.

NOTE This is where the OeS template is filled out with the IDs of the Semantic Components. {See further ISO/IEC 15944, Part 2 of the ISO/IEC 15944 standard titled *"Information technology - Business Agreement Semantic Descriptive Techniques - Part 2: Registration of Scenarios, Scenario Attributes and Scenario Components"}."*

8.5.4 IB demands on Open-edi Support Infrastructure

Rule 144:

IB demands on the Open-edi Support Infrastructure shall be specified.[72)]

The Open-edi Reference Model specifies that the set of functional capabilities modelled in the OeSI provides for initiating, operating, and tracking the progress of Open-edi transactions. The set of functional capabilities of the Open-edi Support Infrastructure shall implement a catalogue of predefined demands on the Open-edi Support Infrastructure include:

a) Handling of DMA requests;

b) Negotiation of role playing;

c) Specification of the Open-edi configuration;

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71) When an IB Time Validity Characteristics(TVC) attribute is specified, the temporal schema referenced should be stated. This is addressed in ISO/IEC 15944-2. See further ISO 19108:2001 *Geographic information – Temporal schema* and ISO 8601:2000 *Data element and interchange - Representation of dates and times.*

72) The minimum data elements needed to be specified as IB demands on Open-edi infrastructure are provided in Part 2 of the ISO/IEC 15944 standard titled *"Information technology – Business Agreement Semantic Descriptive Techniques - Part 2: Registration of Scenarios, Scenario Attributes and Scenario Components".*

d) Interpreting and processing of a role;

e) Making available the data values received from Information Bundles from Open-edi systems;

f) Capture of the data values provided as a result of behavior choice;

g) Provision of security services and auditing services;

h) Tracking and notification of Open-edi transaction status and progress across applications;

i) Management of error reporting;

j) Management of communications.

8.5.5 Rules for the specification of Semantic Components and Semantic Component attributes

8.5.5.1 Rules governing Semantic Components

A Semantic Component (SC) is defined as "a unit of recorded information unambiguously defined in the context of the business goal of the business transaction".

Rule 145:

A Semantic Component may be atomic or composed of other SCs.

NOTE Within one business context and associated goal of a business transaction, a Semantic Component may be considered to be atomic in electronic data interchanges among participating Open-edi Parties. Within another business transaction, this "atomic" Semantic Component may be considered to be composed of several other SCs. "Atomicity" of Semantic Components is thus a matter of granularity and is context dependent on the business requirements.

Rule 146:

A Semantic Component can be a single (simple) data element, a composite data element, or a data structure, (e.g., a set of data elements which interwork in order to ensure semantic completeness and ensure the required unambiguousness).

Rule 147:

A Semantic Component shall be a component of at least one Information Bundle when exchanged among Open-edi Parties.

Rule 148:

A Semantic Component shall be specified via Semantic Component attributes.

The attributes of a Semantic Component must be clearly specified (in plain text). The attribute types of a Semantic Component include the following (and are further explained in the sections which follow).

Rule 149:

Where the set of permitted values of the Semantic Component is governed by a code set, the code set utilized shall be identified and referenced. By using such code sets Open-edi Parties agree to the business practice(s) and rule set(s) of which the code set referenced forms part.[73)]

73) See further ISO/IEC 18022 -Information technology- Identification, Mapping and IT-enablement of Standards for Widely Used Coded Value Domains (CVDs)".

NOTE 1 For example, if an amount of payment is specified by a SC through the use of a type of currency or fund-based on code for ISO 4217 standard of "Codes representing Currencies and Funds", Open-edi Parties by using a SC which references ISO 4217 agree to be bound by the rules and conditions governing ISO 4217. Also the Open-edi Information System has to have the facilities to support ISO 4217.

NOTE 2 Another common example in business transactions is the use of codes representing International Commercial Terms, (e.g., C.O.D., F.O.B., etc.). Here also a Semantic Component which references a code set used by Open-edi Parties in (as part of) an Information Bundle exchanged among roles means that such Open-edi Parties agree to be bound by and accept the rules and obligations of which the code set referenced of which it forms part.

8.5.5.2 Rules governing Semantic Component attributes

The attributes of a Semantic Component must be clearly specified. The attribute types of a SC include the following:

— SC identifier (mandatory)

— SC name(s) (optional)

— SC definition (mandatory)

— SC security service requirements (mandatory)

8.5.5.2.1 Semantic Component attribute: SC identifier

Rule 150:

Each Semantic Component shall have an identifier. The SC identifier shall be unique, linguistically neutral, unambiguous and referenceable.

The key purpose here is to ensure IT-enabled unambiguous referencing required to maximize re-use of SCs.

Rule 151:

The SC identifier shall be constructed autonomously.

8.5.5.2.2 Semantic Component attribute: SC name(s)

Rule 152:

A SC may have one or many names.

The name for a single SC should be as unique as possible and help the understanding of the purpose and the contents of a SC.

Rule 153:

A SC name is the designation of the SC ID by a linguistic expression. More than one SC name as equivalent linguistic expressions may be associated with an SC ID, (e.g., as "aliases").

8.5.5.2.3 Semantic Component attribute: SC definition

Rule 154:

A Semantic Component shall be fully defined.

In addition to a unique ID, the mandatory attributes of a semantic component include name(s), definition, data type, and obligation.

8.5.5.2.4 Semantic Component attribute: SC security service requirements

Rule 155:

Security service requirements that have to be satisfied pertaining to SCs shall be stated including non-applicability {see further Annex B}

For example, an Open-edi Party may require that one or more of the SCs comprising an IB when exchanged among Open-edi Parties be kept confidential by the other parties.

8.6 Business requirements on FSV (business demands on Open-edi Support Infrastructure)

The BOV is intended to capture the requirements placed upon the FSV by the business process. However, there are a number of requirements of a technical nature which would be assumed in the BOV to have been addressed elsewhere or may not be obvious from the analysis of the business process and there is no mechanism in BOV for capturing them.

These may be identified by the following categories:

a) Identification, naming and addressing requirements for clear and unambiguous identification of FSV components, as well as associated identification, naming and addressing information as required to ensure that all parties processing those components are able to derive the same meaning from them,

b) quality of service of the network or value added service used to support the exchange of information between Open-edi Parties in terms of reliability, availability;

c) security techniques to be applied to the information to be exchanged in compliance with general business requirements of one or more of the parties or in order to meet legal requirements or trade or other sectoral demands;

d) requirements for logging, journalising or otherwise recording information in order to meet general legal, commercial, contractual or accounting/auditing purposes as well as for the purposes of obtaining or maintaining statistical or other reporting information;

e) determination of the syntax or other encoding technique to be applied to the information for the purpose of exchange.

These are captured as a catalogue of demands which can be imposed on a scenario or any of its components. The catalogue identifies all the capabilities that are available to the user.

The catalogue of demands is used following the BOV modelling work to ensure that the requirements have been captured even if they were not addressed by the FDT that was used, and that they are included in the requirements to be met by the FSV. These requirements are a further dimension of the capabilities of the FSV which may cause a specific role or Information Bundle to be inappropriate for use with a particular BOV model.

The following relationships exist between BOV and FSV:

a) An Open-edi scenario may be implemented by one or more Open-edi configurations

b) An Open-edi configuration may support one or more Open-edi scenarios

c) A role may be played by one or more DMAs

d) A DMA may play one or more roles

e) An Information Bundle may be mapped to one or more Open-edi user data

f) An Open-edi user data may be mapped to one or more Information Bundles

The interaction between internal functions and roles may be mapped to one or more implementation models in the FSV. Such implementation models can include such concepts as (a) an IT System as an implementation of an internal function or (b) relationships between IT Systems and Open-edi user data.

Such concepts are needed if the interface between information systems and a DMA are modelled as an application program interface (API), as a client/server connection, etc. FSV models shall be traceable to a corresponding BOV model. The BOV model defines the semantic and IT platform independent specification of the possible interfaces in the FSV.

9 Primitive Open-edi scenario template

9.1 Purpose

The purpose of an Open-edi scenario template is to ensure that all the information required for the Business Operational View (BOV) of an Open-edi Scenario, its components and all attributes required to be specified, see Clause 8, (and registered for re-use) are captured in a systematic and explicit manner.

The primitive template[74)] is based on an initial set of requirements already identified in Chapter 4.1 of ISO/IEC 14662 *Open-edi Reference Model* to which are added the results of standards development work on the BOV. The order and grouping of the items in the BOV Template are based on that of Clause 8 itself which in turn is based on development of Open-edi scenarios based on actual business cases.

The requirement for each aspect (attribute) shall be specified as applicable or not applicable. These two conditions are to be coded as Yes = 1 and No = 2 Decision Code[75)] This will allow us to:

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

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

The assignment of "Open-edi Scenario Component ID Code" numbers is of a block-numeric nature. For the "Scope TAG ID Codes" the block numeric numbers 1000 to 1999 are reserved {See 7.3 above}. For the "Component ID Code" numbers, the block numeric 2000+ has been reserved, i.e., up to "9999".

The purpose here is to ensure that all the numeric identifiers for attributes will be unique, unambiguous and linguistically neutral within ISO/IEC 15944-1 as well as in their use in ISO/IEC 15944 Part 2.

This approach will facilitate unambiguous referencing and registration[76)] necessary for re-useability and interoperability of Open-edi scenarios and their components. It will also facilitate support of localization requirements and use of multiple linguistic equivalencies for these numeric tags, i.e., as multiple equivalent human interface equivalencies.

In addition the presence-type attributes defined in Annex B shall be accounted for in OeDT representations of an Open-edi scenario.

74) It is fully addressed in ISO/IEC 15944-2 "*Registration of Scenarios, Scenario Attributes and Scenario Components*".

75) When developing an Open-edi scenario specification, a code “3” may be used to indicate a condition of “Not Yet Known”.

76) Registration of Open-edi scenarios and scenario components is addressed in ISO/IEC 15944-2.

9.2 Template Structure[77] and Content

The Open-edi Scenario Template is structured in matrix form and consists of two distinct parts, namely:

1) those focused on the IT-interface perspective; and,

2) those focused on the human-interface perspective.

9.2.1 IT-interface needs perspective

From an IT-interface needs perspective, all that is required is that of unique, linguistically neutral and unambiguous identifiers for scenario attributes, and scenario components and their attributes. In order to facilitate use and management a block numeric numbering scheme is used to assign these identifiers[78] as follows:

a) Scenario Attributes	2000 through 2999
b) Role Attributes	3000 through 3999
c) Information Bundle Attributes	4000 through 4999
d) Semantic Component Attributes	5000 through 5999

Within each of these major blocks there are sub-blocks of numbers reflecting the hierarchy and relationships of sets of attributes.

9.2.2 Human interface needs perspective

Human interface needs perspectives are on the whole of a linguistic nature. Natural language(s) are used to provide equivalent linguistic expressions understandable for use by human beings. Since human beings use multiple natural languages, the Template matrix is structured to allow for expandability into as many linguistic equivalent terms and names as may be required by users of this standard.

9.2.3 Consolidated Template of attributes of Open-edi scenarios, roles and Information Bundles

IT-Interface		Human-Interface Equivalents			Spare
Open-edi Scenario Component ID Code	**Deci-sion Code**	**Name (ISO English)**	**Name (ISO French)**	**Name (Other)**	
(1)	(2)	(3)	(4)	(5)	(6)
2000		**OPEN-EDI SCENARIO ATTRIBUTES**			
2010		OeS Identifier			
2020		OeS Name(s)			

77) The physical appearance of the matrix of the Template is of an illustrative nature. {See further ISO/IEC 15944, Part2}. The purpose of the Template is to ensure that all the specification requirements identified in Clause 8 are captured in a systematic manner.

78) Implementers of Open-edi scenarios are free to map these identifiers to non-intelligent identifiers in their internal applications, (e.g., as part of their internal behavior).

IT-Interface		Human-Interface Equivalents			Spare
Open-edi Scenario Component ID Code	**Deci-sion Code**	**Name (ISO English)**	**Name (ISO French)**	**Name (Other)**	
(1)	(2)	(3)	(4)	(5)	(6)
2030		OeS Purpose			
2040		OeS Set of Roles OeS Business Requirements, Rules and Constraints			
2050		OeS Set of Information Bundles OeS Scenario Inheritance Identifier(s) and Cross-References			
2060		OeS Set of Requirements on Open-edi Parties			
2070		OeS Set of external constraints on Business Requirements, i.e., Laws and Regulations			
2080		OeS Inheritance Identifier(s) and Cross References			
2090		OeS Security Service Requirements			
2100		OeS Communication - Quality of Service Requirements			
2120		OeS Role Requirements and Constraints			
2130		OeS Dependency among Roles in a Scenario			
2140		OeS Dependency among Information Bundles in a Scenario			
2150		OeS Dependency among Semantic Components of different Information Bundles			
2500		OeS DEMANDS ON OPEN-EDI PARTIES			
2600		OeS DEMANDS ON OPEN-EDI INFRASTRUCTURE			
3000		**ROLE ATTRIBUTES**			
3005		Role Identifier			
3010		Role Name(s)			
3015		Role Purpose			
3020		Role Business Goal(s)			
3025		Role Business Rules and Constraints			

IT-Interface		Human-Interface Equivalents			Spare
Open-edi Scenario Component ID Code	**Decision Code**	**Name (ISO English)**	**Name (ISO French)**	**Name (Other)**	
(1)	(2)	(3)	(4)	(5)	(6)
3030		Role Inheritance Identifiers and Cross-References			
3035		Role external constraints on Business Requirements, i.e., Laws and Regulations			
3040		Role Security Service Requirements			
3045		Role Communications and Quality of Service Requirements			
3050		ROLE DEMANDS ON OPEN-EDI PARTIES			
3060		INTEROPERABILITY DEMANDS AMONG ROLES			
3065		Role States			
3070		ROLE TRANSITIONS			
3075		ROLE EVENTS			
3080		ROLE ACTIONS			
3085		ROLE INTERNAL FUNCTION			
3090		ROLE DEMANDS ON OPEN-EDI SUPPORT INFRASTRUCTURE			
4000		**INFORMATION BUNDLE ATTRIBUTES**			
4010		IB Identifier			
4020		IB Name(s)			
4030		IB Purpose			
4040		Business Rules Controlling Content of IBs			
4050		IB external constraints on Business Requirements, Governing Content of an IB, i.e., Laws and Regulations			
4060		IB contents			
4070		IB recorded information retention – business rules and constraints			
4080		IB recorded information retention – external constraints on business requirements, i.e., laws and regulations			

IT-Interface		Human-Interface Equivalents			Spare
Open-edi Scenario Component ID Code	Deci-sion Code	Name (ISO English)	Name (ISO French)	Name (Other)	
(1)	(2)	(3)	(4)	(5)	(6)
4085		IB time validity characteristics			
4090		Relationship of Semantic Components within an IB			
4100		IB security service requirements			
4200		IB INFORMATION FOR INTEROPERABILITY			
4300		IB DEMANDS ON OPEN-EDI SUPPORT INFRASTRUCTURE			
5000		**SEMANTIC COMPONENT ATTRIBUTES**			
5010		SC Identifier			
5020		SC Name(s)			
5030		SC Definition			
5040		SC Security service requirements			

10 Requirements on Open-edi description techniques

The requirements that candidate Open-edi Descriptive Techniques should support are listed in this clause. 10.1 lists a set of general requirements, 10.2 and 10.3 list the specific requirements for roles and Information Bundles respectively. The main assumptions that serve as the basis for these requirements are found in the preceding clauses of this Clause.

10.1 General requirements on Open-edi description techniques

Open-edi scenarios will be written by different user communities and shall be compliant with the BOV related standards.

Moreover, it is highly desirable that several tools exist on the market and that the standards of the OeDTs provide for a neutral format of exchange between the tools in order that specifications produced on one tool of the market can be reused and modified on another modelling tool of the market as is already the case with some computerised workflow tools.

Rule 156:

OeDTs should provide both for (1) computer interpretability and process-ability at the IT interface among heterogeneous information systems and (2) a human understandable (interpretable) linguistic equivalent(s) at the human interface level.

NOTE The use of unique, linguistically neutral, and unambiguous identifiers for all scenario and scenario components, facilitates mapping the computer interpretable formal specification into one (or more) human understandable linguistically based equivalents.

Rule 157:

Every OeDT shall allow for the verification whether all possible initiation paths of a scenario lead to allowable termination.

Rule 158:

OeDT Properties

The following properties will be used as a yardstick to measure if a certain representation is primitive, in the sense that it has the sufficient and necessary modelling constructs to represent phenomena from a certain domain (in the case of Open-edi this domain is the exchange of data among parties).[79)]

Finitude: the number of modelling constructs must be smaller than the number of real-world phenomena these constructs can represent.

Comprehensiveness: every phenomenon within the boundaries of the domain to be modelled can be expressed as a structure of modelling constructs

Completeness: describing a phenomenon in terms of modelling constructs reveals all the necessary information about this phenomenon.

Independence: no modelling construct is definable in terms of another construct.

Canonicality: no two unique phenomena are definable by the same structure of modelling constructs.

10.2 Requirements on OeDTs for roles

The behavior to be performed by the Open-edi Party playing the role has to be modelled and interrelated. This means that a process modelling technique has to be chosen for modelling activities and role interaction, in addition to a data modelling technique capabilities.[80)] An OeDT must also have the ability to support a hierarchical decomposition of the roles as well as inheritance and cross-referencing.

The state of each Open-edi Party playing a role should be represented in order to be able to analyze the dynamic properties of a scenario. A state describes the status of a role, and may be changed when one or more events have occurred. The initial state (starting point) and the final state(s) (termination point(s)) of each Open-edi Party should be unambiguously stated. Each role shall have only one initial state, but may have one or more alternative final states. A state must belong to only one role. The overall status of the transaction, governed by the Open-edi Scenario, is composed of the states of each of the roles.

A transition between states within a given role is triggered by events and results in actions. A state may be current state to one or more transitions, and may be next state to one or more transitions.

79) This list is based on a study by Winograd (1978) on typical features of semantic primitives.

80) SC32/WG1 has identified several classes of such techniques and given specific examples of existing FDTs for each of these classes (for instance IDEF, Petri Nets, Data Flow Diagrams, etc.) in ISO/IEC 14662:1997 *Open-edi Reference Model*, "Annex C (Informative) Example of Formal Description Techniques for Modelling Role Behavior". Currently UML is being utilized. {See further above footnote 6}.

Three kinds of events are to be represented: the receiving of Information Bundles, external choices and time-outs. Where Information Bundles are received, a reference to the unique identifier of this Information Bundle {see 8.5.2.1} must be present, as well as the requirements from the Catalogue of Demands posed on the FSV level for the exchange of this Information Bundle. External choices should be represented to allow the specification of alternative ways of proceeding, depending on events beyond the control of the Open-edi Party playing the role. This includes the handling of error messages coming out of the FSV. Finally, it should be possible to explicitly model time-outs in order to be able to model deadlines and to detect if an expected Information Bundle has not been received from another Open-edi Party.

Two kinds of actions are to be represented: the sending of Information Bundles and the making of (internal decisions). Where Information Bundles are sent, a reference to the unique identifier of this Information Bundle {see 8.5.2.1} must be present, as well as the requirements from the Catalogue of Demands posed on the FSV level for the exchange of this Information Bundle. Internal choices made by the Open-edi Parties playing the roles must be represented (referenced), although the actual internal rules on which these choices are based need not be modelled. These internal rules are usually confidential to the organization. Thus, only the fact that a choice is made is represented, not how this choice is made.

The ordering of the exchanges of Information Bundles may have strict temporal specifications, for instance in a business transaction conducted as series of dialogues interactively. Hence, both absolute and relative temporal constraints have to be expressible in the OeDT as well. Also, the specification of concurrent events/actions has to be supported.

It should be noted that it is not trivial to represent choices and concurrency with a single FDT, since many techniques are only strong in one area. For instance, state transition diagrams or networks are weak in the expression of concurrency but strong in choice. PERT diagrams are exactly the inverse. However, FDTs do exist that are capable of doing this.

The requirement to be able to model internal and external choices, the events that influence the execution of a role, the inclusion of timers, as well as their concurrent interoperation, guarantees that all common forms of exception handling can be modelled.

10.3 Requirements on OeDTs for Information Bundles

An OeDT must have the ability to support a hierarchical decomposition of the Information Bundle into the Semantic Components it consists of.

The OeDT for Information Bundles needs to represent the inter-working between Semantic Components, both within an Information Bundle and between Semantic Components in different Information Bundles. This means that the following aspects have to be explicitly covered:

a) the representation of the cardinality of these relationships;

b) the representation of the composition of Information Bundles in terms of Semantic Components;

c) the representation of the dependency between Semantic Components within an Information Bundle; and,

d) the representation of the dependency between Semantic Components in different Information Bundles.

11 References

ISO/IEC JTC 1/WG 3 N014 Report of the Open-edi conceptual model
1992-04-09

IEC ISO ITU-TS UN/ECE Report of the Inter-Agency Working Group for Coordinated Open-edi Standards Development
1993-08

ISO/IEC JTC 1/SC 30 N068 Open-edi Topics List

ISO/IEC JTC 1/SC 30 N132 Relationship between the components of an Open-edi scenario 1995-02-07

ISO/IEC JTC 1/SC 30 N133 Identification and analysis of classes of business requirements in relation to the Open-edi scenarios
1995-02-01

ISO/IEC JTC 1.SC 30/WG 1 N005 Open-edi Metamodel
1996-03-20

ISO/IEC JTC1 SC32/WG1 N040 Trond Johanson, Roles and internal functions, 1996-10-07.

Knoppers, Jake V. *"Global electronic commerce through localization and multilingualism",* Computer Standards & Interfaces, 20(1998) 101-109.

Annex A
(normative)

Consolidated list of terms and definitions with cultural adaptability: ISO English and ISO French language equivalency

A.1 Introduction

Users of this ISO/IEC 15944-1 standard may not have ready access to all standards referenced in either the ISO English language version or the ISO French language equivalent where available.

This standard maximizes the use of existing standards where and whenever possible including relevant and applicable existing terms and definitions. This Annex A contains the consolidated list of the ISO English and ISO French language paired terms and definitions used in this standard including those terms and definitions introduced in this standard. The source is Clause 3.1 Definitions.

A.2 ISO English and ISO French

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

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

A.3 Cultural Adaptability and Quality Control

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

Terms and definitions are an essential part of a standard. This Annex serves to support the "cultural adaptability" aspects of standards as required by ISO/IEC JTC1. Its purpose is to ensure that if, for whatever reason, a ISO/IEC JTC1 standard is developed in one ISO/IEC "official" language only, at the minimum the terms and definitions are made available in more than one language.[81)]

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

- should be considered a "quality control check" in that establishing an equivalency in another language ferrets out "hidden" ambiguities in the source language. Often it is only in the translation that ambiguities in the meaning, i.e., semantics, of the term/definition are discovered. Ensuring bilingual/multilingual equivalency of terms/definition should thus be considered akin to a minimum "ISO 9000-like" quality control check; and,

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

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

A.4 Organization of Annex A Consolidated List is in Matrix Form

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

Col. No.	Use
1	ID as per ISO/IEC 15944-1 (3.1.nn)
2	Source. International standard referenced or ISO/IEC 15944-1.
3	ISO English Language - Term
4	ISO English Language - Definition
5	ISO French Language - Term *
6	ISO French Language - Definition

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

* Use of an asterisk (*) in Column 2 (2) indicates that the ISO standard referenced (other than ISO/IEC 15944-1) in Column (2) does not have an ISO French language version. For these terms and definitions, ISO/IEC 15944-1 is providing the ISO French language equivalent.

A.5 Consolidated List of ISO/IEC 15944-1 Terms and Definitions

Identification		ISO English Language		ISO French Language	
Term ID	Source	Term	Definition	Term	Definition
(1)	(2)	(3)	(4)	(5)	(6)
01	ISO/IEC 15944-1 (3.1.01)	agent	a *Person* acting for another *Person* in a clearly specified capacity in the context of a *business transaction.* NOTE Excluded here are agents as "automatons" (or robots, bobots, etc.). In ISO/IEC 14662, "automatons" are recognized and provided for but as part of the Functional Service View (FSV) where they are defined as an "Information Processing Domain (IPD)".	mandataire	*Personne* agissant au nom d'une autre *Personne* à titre précis dans le contexte d'une *transaction d'affaires.* NOTE Sont exclus les mandataires tels que les «automates» (ou les robots, bobots, etc.). Dans la norme ISO/CEI 14662, les «automates» sont pris en compte et prévus, mais à titre de Vue de services fonctionnels (FSV), où ils sont définis comme «domaine de traitement de l'information (IPD)».
02	ISO/IEC 14662:1997 (3.1.1)	Application Program Interface (API)	a boundary across which application software uses facilities of programming languages to invoke services.	Interface de programme d'application (API, Application Program Interface)	frontière au travers de laquelle un logiciel applicatif fait appel, pour demander des services, aux moyens qu'offrent les langages de programmation.
03	ISO/IEC 10181-2:1996	authentication	the provision of assurance of the claimed identity of an *entity*.	authentification	attestation de l'identité revendiquée par une *entité*.
04	ISO/IEC TR 13335-1:1996 (3.3) monolingual (English) only	authenticity	the property that ensures that the identity of a subject or resource is the one claimed. Authenticity applies to *entities* such as users, processes, systems and *information*.	authenticité*	propriété assurant que l'identité d'un sujet ou d'une ressource est celle qui est prétendue. L'authenticité s'applique à des *entités* telles que des utilisateurs, des processus, des systèmes et des *informations*.
05	ISO/IEC 14662:1997 (3.1.2)	business	a series of processes, each having a clearly understood purpose, involving more than one organization, realized through the exchange of information and directed towards some mutually agreed upon goal, extending over a period of time.	affaires	série de processus, ayant chacun une finalité clairement définie, impliquant plus d'une organisation, réalisés par échange d'informations et tendant à l'accomplissement d'un objectif accepté par accord mutuel pour une certaine période de temps.
06	ISO/IEC 14662:1997 (3.1.3)	Business Operational View (BOV)	a perspective of *business transactions* limited to those aspects regarding the making of business decisions and *commitments* among *organizations*, which are needed for the description of a *business transaction*.	Vue opérationnelle des affaires (BOV, Business Operational View)	vue perspective sur les *transactions d'affaires*, restreinte à ceux des aspects relatifs à la prise par les *organisations* de décisions et d'*engagements* concernant leurs affaires qui sont nécessaires pour décrire une *transaction d'affaires*.
07	ISO/IEC 14662:1997 (3.1.4)	business transaction	a predefined set of activities and/or processes of *organizations* which is initiated by an *organization* to accomplish an explicitly shared business goal and terminated upon recognition of one of the agreed conclusions by all the involved *organizations*	transaction d'affaires	ensemble prédéterminé d'activités menées par des *organisations* et/ou de procédures qu'elles suivent, déclenché par une *organisation* qui vise à atteindre dans les affaires un but expressément partagé, terminé lorsque est observée une des

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			although some of the recognition may be implicit.		conclusions convenues par toutes les *organisations* prenantes, bien que cette observation puisse être partiellement implicite.
08	ISO/IEC 15944-1 (3.1.08)	buyer	a *Person* who aims to get possession of a good, service and/or right through providing an acceptable equivalent value, usually in money, to the *Person* providing such a good, service and/or right.	acheteur	*Personne* désirant acquérir un bien, service et/ou droit en fournissant une valeur équivalente acceptable, généralement de l'argent, à la Personne qui offre ce bien, service et/ou droit.
09	ISO/IEC 15944-1 (3.1.09)	commitment	the making or accepting of a right, obligation, liability or responsibility by a *Person* that is capable of enforcement in the jurisdiction in which the commitment is made.	engagement	création ou acceptation d'un droit, d'une obligation, d'une dette ou d'une responsabilité par une *Personne* qui est apte à appliquer la juridiction conformément à laquelle l'engagement est pris.
10	Based on ISO/IEC Directives, Part 1, Section 2.5.6, 1998; see also ISO/IEC Guide 2: 1996 (1.7)	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 that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments. NOTE Consensus need not imply unanimity.	consensus (perspective de la normalisation)	accord général caractérisé par l'absence d'opposition ferme à l'encontre de l'essentiel du sujet émanant d'une partie importante des intérêts en jeu et par un processus de recherche de prise en considération des vues de toutes les parties concernées et de rapprochement des positions divergentes éventuelles. NOTE Le consensus n'implique pas nécessairement l'unanimité.
11	ISO/IEC 15944-1 (3.1.11)	constraint	a rule, explicitly stated, that prescribes, limits, governs or specifies any aspect of a *business transaction.* NOTE 1 Constraints are specified as rules forming part of components of Open-edi scenarios, i.e., as scenario attributes, roles, and/or information bundles. NOTE 2 For constraints to be registered for implementation in Open-edi, they must have unique and unambiguous identifiers. NOTE 3 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".	contrainte	règle, énoncée explicitement, qui prescrit, limite, régit ou spécifie tout aspect d'une *transaction d'affaires*. NOTE 1 Les contraintes sont spécifiées comme des règles faisant partie de composantes de scénarios d'EDI-ouvert, c.-à-d. d'attributs de scénarios, de rôles, et/ou de faisceaux d'information. NOTE 2 Les contraintes doivent avoir des identificateurs uniques et non-ambigus afin d'être enregistrées pour application dans l'EDI-ouvert. NOTE 3 Une contrainte peut faire l'objet d'un accord entre des parties (clause du contrat), et est par conséquent considérée comme «contrainte interne». Ou une contrainte peut être imposée à des parties (par ex. des lois, des règlements, etc.), et est par conséquent considérée comme une «contrainte externe».

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12	ISO/IEC 15944-1 (3.1.12)	consumer	a *buyer* who is an *individual* to whom consumer protection requirements are applied as a set of *external constraints* on a *business transaction*. NOTE 1 Consumer protection is a set of explicitly defined rights and obligations applicable as external constraints on a business transaction. NOTE 2 The assumption is that a consumer protection applies only where a buyer in a business transaction is an individual. If this is not the case in a particular jurisdiction, such external constraints should be specified as part of scenario components as applicable. NOTE 3 It is recognized that external constraints on a buyer of the nature of consumer protection may be peculiar to a specified jurisdiction.	consommateur	*acheteur*, en tant qu'*individu*, auquel s'appliquent des exigences de protection des consommateurs comme ensemble de *contraintes externes* sur une *transaction d'affaires*. NOTE 1 La protection des consommateurs est un ensemble de droits et d'obligations définis explicitement et qui s'appliquent à titre de contraintes externes à une transaction d'affaires. NOTE 2 Le postulat est que la protection des consommateurs s'applique uniquement lorsqu'un acheteur dans une transaction d'affaires est un individu. Si ce n'est pas le cas dans une juridiction particulière, il faut spécifier ces contraintes externes comme faisant partie de composantes de scénarios selon le cas. NOTE 3 On reconnaît que les contraintes externes de protection des consommateurs exercées sur un acheteur peuvent relever d'une juridiction particulière.
13	ISO/IEC 2382:1993	data	a reinterpretable representation of *information* in a formalized manner suitable for communication, interpretation, or processing. NOTE Data can be processed by humans or by automatic means.	donnée	représentation réinterprétable d'une *information* sous une forme conventionnelle convenant à la communication, à l'interprétation. NOTE Les données peuvent être traitées par des moyens humains ou automatiques.
14	ISO/IEC 15944-1 (3.14)	data (in a business transaction)	representations of *recorded information* that are being prepared or have been prepared in a form suitable for use in a computer system.	donnée (dans une transaction d'affaires)	représentations d'informations enregistrées qui sont préparées ou l'ont été de façon à pouvoir être traitées par un ordinateur.
15	ISO/IEC 11179-3:1994 (3.3 E) (3.4 F)	data element	a unit of *data* for which the definition, *identification*, representation and permissible values are specified by means of a set of attributes.	élément de données	unité d'information dont la définition, l'identification, la représentation et les valeurs autorisées sont spécifiées au moyen d'un ensemble d'attributs.
16	ISO/IEC 2382-04:1998 (04.07.01)	data element (in organization of data)	a unit of *data* that is considered in context to be indivisible. EXAMPLE The data element "age of a person" with values consisting of all combinations of 3 decimal digits. NOTE Differs from the entry 17.06.02 in ISO/IEC 2382-17.	élément de données (en organisation de données)	*donnée* considérée comme indivisible dans un certain contexte. EXEMPLE L'élément de données «âge d'une personne» avec des valeurs comprenant toutes les combinaisons de trois chiffres décimaux. NOTE Cette notion est différente de celle de l'article 17.06.02 dans la norme ISO/CEI 2382-17.

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17	ISO/IEC 14662:1997(E) (4.2.1)]	Decision Making Application (DMA)	the model of that part of an *Open-edi system* that makes decisions corresponding to the role(s) that the *Open-edi Party* plays, as well as originating, receiving and managing data values contained in instantiated information bundles, which is not required to be visible to the other *Open-edi Party(ies)*.	Application à pouvoir de décision	modèle de la partie d'un *système d'EDI-ouvert* qui prend les décisions correspondant au rôle ou aux rôles que joue le *partenaire d'EDI-ouvert*; elle est aussi source, récepteur et gestionnaire des valeurs des données contenues dans les instances de faisceaux d'informations; elle n'a pas à être rendue visible au(x) autre(s) *partenaire(s) d'EDI-ouvert.*
18	ISO/IEC 10181-2:1996	distinguishing identifier	*data* that unambiguously distinguishes an *entity* in the authentication process.	identificateur distinctif	*information* qui différencie sans ambiguïté une *entité* dans le processus d'authentification.
19	ISO/IEC 14662:1997 (3.1.5)	Electronic Data Interchange (EDI)	the automated exchange of any predefined and structured *data* for business purposes among information systems of two or more *organizations*.	Échange de Données Informatisé (EDI, Electronic Data Interchange)	échange automatisé de *données* structurées et prédéfinies pour traiter des affaires entre les systèmes d'information de deux ou plusieurs *organisations*.
20	ISO/IEC 2382-17:1996 (17.02.05)	entity	any concrete or abstract thing that exists, did exist, or might exist, including associations among these things. EXAMPLE A person, object, event, idea, process, etc. NOTE An entity exists whether data about it are available or not.	entité	tout objet ou association d'objets, concret ou abstrait, existant, ayant existé ou pouvant exister. EXEMPLE personne, événement, idée, processus, etc. NOTE Une entité existe que l'on dispose de données à son sujet ou non.
21	ISO/IEC 9798-1:1997 (3.3.11) monolingual (English) only	entity authentication	the corroboration that the *entity* is the one claimed.	authentification de l'entité*	corroboration que l'*entité* est bien celle qui est revendiquée.
22	ISO/IEC 2382-17:1996 (17.02.14)	(entity) identification	a method of using one or more attributes whose attribute values uniquely identify each occurrence of a specified *entity*.	identification (d'entités)	méthode qui consiste à utiliser un ou plusieurs attributs dont les valeurs d'attribut identifient de façon unique chaque occurrence d'une *entité* spécifié.
23	ISO/IEC 15944-1 (3.1.23)	external constraint	a *constraint* which takes precedence over *internal constrains* in a *business transaction*, i.e., is external to those agreed upon by the parties to a *business transaction*. NOTE 1 Normally external constraints are created by law, regulation, orders, treaties, conventions or similar instruments. NOTE 2 Other sources of external constraints are those of a sectorial nature, those which pertain to a particular jurisdiction or a mutually agreed to common business conventions, (e.g., INCOTERMS, exchanges, etc.).	contrainte externe	*contrainte* qui l'emporte sur les *contraintes internes* dans une *transaction d'affaires*, c.-à-d. qui est externe à celles convenues entre les parties dans une *transaction d'affaires*. NOTE 1 Normalement , les contraintes externes découlent des lois, règlements, décrets, conventions, ou autres instruments semblables. NOTE 2 D'autres sources de contraintes externes sont de nature sectorielle, qui relèvent d'une juridiction particulière, ou de conventions d'affaires convenues mutuellement, (par ex. INCOTERMS, les échanges, etc.).

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			NOTE 3 External constraints can apply to the nature of the good, service and/or right provided in a business transaction. NOTE 4 External constraints can demand that a party to a business transaction meet specific requirements of a particular role. EXAMPLE 1 Only a qualified medical doctor may issue a prescription for a controlled drug. EXAMPLE 2 Only an accredited share dealer may place transactions on the New York Stock Exchange. EXAMPLE 3 Hazardous wastes may only be conveyed by a licensed enterprise. NOTE 5 Where the information bundles (IBs), 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 must be recorded. EXAMPLE 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 A minimum external constraint applicable to a business transaction often requires one to differentiate whether the Person, i.e., 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".		NOTE 3 Des contraintes externes peuvent s'exercer sur la nature des biens, des services, et/ou au droit accordé dans une transaction d'affaires. NOTE 4 Des contraintes externes peuvent exiger qu'une partie dans une transaction d'affaires réponde aux exigences spécifiques d'un rôle. EXEMPLE 1 Seul un médecin diplômé peut prescrire une ordonnance pour un médicament contrôlé. EXEMPLE 2 Seul un courtier en actions accrédité peut effectuer des transactions à la bourse de New York. EXEMPLE 3 Seule une entreprise attitrée peut transporter des déchets dangereux. NOTE 5 Lorsque les faisceaux d'information, y compris leurs composantes sémantiques d'une transaction d'affaires constituent l'ensemble d'une transaction d'affaires (par ex. à des fins juridiques ou comptables), toutes les contraintes doivent être enregistrées. EXEMPLE Il peut exister une exigence juridique ou comptable de conserver la totalité des documents enregistrés relatifs à une transaction d'affaires, c.-à-d. les faisceaux d'information échangés, ou les «enregistrements». NOTE 6 Une contrainte externe minimum applicable à une transaction d'affaires exige souvent de distinguer si une Personne, c.-à-d. une partie dans une transaction d'affaires, est un «individu», une «organisation», ou une «administration publique». Par ex., les droits de protection de la vie privée ne s'appliquent qu'à une Personne en tant qu' «individu»
24	ISO/IEC 14662:1997 (3.1.6)	Formal Description Technique (FDT)	a specification method based on a description language using rigorous and unambiguous rules both with respect to developing expressions in the language (formal syntax) and interpreting the meaning of these expressions (formal semantics).	Technique de description formelle (FDT, Formal description Technique)	méthode de spécification fondée sur un langage de spécification faisant appel à des règles rigoureuses et non ambiguës tant pour le développement d'expressions dans le langage (syntaxe formelle) que pour l'interprétation de la signification de ces expressions (sémantique formelle).

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25	ISO/IEC 14662:1997 (3.1.7)	Functional Service View (FSV)	a perspective of *business transactions* limited to those information technology interoperability aspects of *IT Systems* needed to support the execution of *Open-edi transactions*.	Vue fonctionnelle des services (FSV)	vue perspective sur les *transactions d'affaires,* restreinte à ceux des aspects relatifs au fonctionnement informatique coopératif entre *systèmes d'information* qui sont nécessaires à l'exécution des *transactions d'EDI-ouvert*.
26	ISO/IEC 15944-1 (3.1.26)	identification	a rule-based process, explicitly stated, involving the use of one or more attributes, i.e., *data elements,* whose value (or combination of values) are used to identify uniquely the occurrence or existence of a specified *entity*.	identification	processus basé sur des règles, énoncées explicitement, impliquant l'utilisation d'un ou plusieurs attributs, c.à-d. des *éléments de données*, dont la valeur (ou une combinaison de valeurs) sert à identifier de façon unique l'occurrence ou l'existence d'une *entité* spécifiée.
27	ISO/IEC 15944-1 (3.1.27)	identifier (in a business transaction)	an unambiguous, unique and a linguistically neutral value, resulting from the application of a rule-based *identification* process. Identifiers must be unique within the *identification* scheme of the issuing authority.	identificateur (dans une transaction d'affaires)	valeur non ambiguë, unique et linguistiquement neutre, résultant de l'application d'un processus d'*identification* à base de règles. Les identificateurs doivent être uniques dans le système d'*identification* de l'autorité émettrice.
28	ISO/IEC 15944-1 (3.1.28)	individual	a *Person* who is a human being, i.e., a natural person, who acts as a distinct indivisible *entity* or is considered as such.	individu	*Personne* qui est un être humain,. c.à-d. une personne physique, qui agit à titre d'*entité* indivisible distincte ou qui est considérée comme telle.
29	ISO 2382-1:1993 (01.01.01)	information (in information processing)	knowledge concerning *objects*, such as facts, events, things, processes, or ideas, including concepts, that within a certain context has a particular meaning.	information (en traitement de l'information)	connaissance concernant un *objet* tel qu'un fait, un évènement, une chose, un processus ou une idée, y compris une notion, et qui, dans un contexte déterminé, a une signification particulière.
30	ISO/IEC 14662:1997 (4.1.2.2)	Information Bundle (IB)	the formal description of the semantics of the *information* to be exchanged by *Open-edi Parties* playing *roles* in an *Open-edi scenario*.	Faisceau d'informations (IB, Information Bundle)	description formelle de la valeur sémantique des *informations* échangées entre *partenaires d'EDI-ouvert* jouant un *rôle* dans un *scénario d'EDI-ouvert.*
31	ISO/IEC 14662:1997 (4.2.2)	Information Processing Domain (IPD)	an *Information Technology System* which includes at least either a *Decision Making Application* and/or one of the components of an *Open-edi* Support Infrastructure, and acts/executes on behalf of an *Open-edi Party* (either directly or under a delegated authority).	Domaine de traitement de l'information (IPD)	*système d'information* comprenant au moins une application à pouvoir de décision ou un des composants de l'infrastructure de support d'EDI-ouvert ou les deux, agissant ou fonctionnant au nom d'un partenaire d'EDI-ouvert (directement ou par délégation d'autorité)
32	ISO/IEC 14662:1997 (3.1.8)	Information Technology System (IT System)	a set of one or more computers, associated software, peripherals, terminals, human operations, physical processes, information	système d'information (IT System)	ensemble constitué d'un ou de plusieurs ordinateurs, avec leurs logiciels associés, de périphériques, de terminaux,

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			transfer means, that form an autonomous whole, capable of performing information processing and/or information transfer.		d'opérateurs humains, de processus physiques et de moyens de transfert d'information, formant un tout autonome capable de traiter l'information et/ou de la transmettre.
33	ISO/IEC 15944-1 (3.1.32)	internal constraint	a *constraint* which forms part of the *commitment(s)* mutually agreed to among the parties to a *business transaction*. NOTE Internal constraints are self-imposed. They provide a simplified view for modelling and re-use of scenario components of a business transaction for which there are no external constraints or restrictions to the nature of the conduct of a business transaction other than those mutually agreed to by the buyer and seller.	contrainte interne	*contrainte* qui fait partie de l'*engagement* convenu mutuellement entre les parties d'une *transaction d'affaires*. NOTE Les contraintes internes sont volontaires. Elles présentent une vue simplifiée de modélisation et de réutilisation des composantes de scénario d'une transaction d'affaires sans contraintes ou restrictions externes quant à la conduite d'une transaction d'affaires autres que celles convenues mutuellement entre l'acheteur et le vendeur.
34	ISO/IEC 15944-1 (3.1.33)	medium	physical material which serves as a functional unit, in or on which *information* or *data* is normally recorded, in which *information* or *data* can be retained and carried, from which *information* or *data* can be retrieved, and which is non-volatile in nature. NOTE 1 This definition is independent of the material nature on which the information is recorded and/or technology utilized to record the information, (e.g., paper, photographic, (chemical), magnetic, optical, ICs (integrated circuits), as well as other categories no longer in common use such as vellum, parchment (and other animal skins), plastics, (e.g., bakelite or vinyl), textiles, (e.g., linen, canvas), metals, etc.). NOTE 2 The inclusion of the "non-volatile in nature" attribute is to cover latency and records retention requirements. NOTE 3 This definition of "medium" is independent of: a) form or format of recorded information; b) physical dimension and/or size; and, c) any container or housing that is physically separate from material being housed and without which the medium can remain a functional unit	support	matériel physique qui sert d'unité fonctionnelle, et dans lequel ou sur lequel l'*information* ou les *données* sont normalement stockées, dans lequel de l'*information* ou des *données* peuvent être retenues et transportées, à partir duquel de l'*information* ou des *données* peuvent être extraites, et qui est non-volatile par nature. NOTE 1 Cette définition est indépendante de la nature matérielle sur laquelle l'information est enregistrée et/ou de la technologie utilisée pour enregistrer l'information (par ex. du papier, des supports photographiques (chimiques), magnétiques, optiques, des circuits imprimés, ainsi que d'autres catégories qui ne sont plus utilisées de façon courante telles que le vélin, le parchemin (et autres peaux animales), les plastiques (par ex. la bakélite ou le vinyle), les textiles (par ex. le lin et la toile), les métaux, etc. NOTE 2 L'inclusion de l'attribut «nature non-volatile» couvre les exigences en matière de latence et de rétention des dossiers. NOTE 3 La définition de «support» est indépendante des éléments suivants: a) la forme ou le format de l'information enregistrée; b) la dimension physique et/ou la taille; et, c) tout conteneur ou boîtier qui est

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			NOTE 4 This definition of "medium" also captures and integrates the following key properties: a) the property of medium as a material in or on which information or data can be recorded and retrieved; b) the property of storage; c) the property of physical carrier; d) the property of physical manifestation, i.e., material; e) the property of a functional unit; and, f) the property of (some degree of) stability of the material in or on which the information or data is recorded		séparé physiquement du matériel logé et sans lequel le support peut demeurer une unité fonctionnelle. NOTE 4 La définition de «support» reflète et intègre aussi les propriétés clés suivantes: a) propriété du support comme matériel dans ou sur lequel de l'information ou des données peuvent être stockées et extraites; b) la propriété du stockage; c) la propriété du porteur physique; d) la propriété de la manifestation physique, par ex. le matériel; e) la propriété d'une unité fonctionnelle; et, f) la propriété (jusqu'à un certain degré) de la stabilité du matériel dans ou sur lequel l'information ou les données sont stockées.
35	ISO 1087:1990 (5.3.1.3)	name	designation of an *object* by a linguistic expression.	nom	désignation d'un *objet* par une unité linguistique.
36	ISO 1087:1990 (2.1)	object	any part of the perceivable or conceivable world. NOTE Objects may also be material, (e.g., engine) or immaterial, (e.g., magnetism).	objet	élément de la réalité qui peut être perçu ou conçu. NOTE Les objets peuvent être matériels (par ex.: moteur) ou immatériels (par ex.: magnétisme).
37	ISO/IEC 14662:1997 (3.1.9)	Open-edi	*electronic data interchange* among multiple autonomous *organizations* to accomplish an explicit shared business goal according to *Open-edi standards*.	EDI-ouvert	*échange de données informatisé* par application des *normes d'EDI-ouvert* entre plusieurs *organisations* autonomes visant un objectif d'affaires explicitement partagé.
38	ISO/IEC 14662:1997 (4.1.1)	Open edi Description Technique (OeDT)	a specification method such as a *Formal Description Technique*, another methodology having the characteristics of a *Formal Description Technique*, or a combination of such techniques as needed to formally specify *BOV* concepts, in a computer processible form.	Technique de description d'EDI-ouvert	méthode de spécification, *technique de description formelle*, ou toute autre technique ayant les caractéristiques d'une *technique de description formelle*, ou combinaison de ces techniques, permettant de spécifier formellement les concepts de la *BOV* sous forme calculable par un ordinateur.
39	ISO/IEC 14662:1997 (3.1.11)	Open-edi Party (OeP)	an *organization* that participates in Open-edi. NOTE Often in this ISO/IEC 15944-1 standard referred to generically as "party" or "parties" for any entity modelled as playing a role in Open-edi scenarios.	Partenaire d'EDI-ouvert	*organisation* participant à l'EDI-ouvert. NOTE Dans la norme ISO/CEI 15944-1, souvent mentionnée de façon générique comme «partie» ou «parties» pour toute entité modélisée comme jouant un rôle dans les scénarios d'EDI-ouvert.

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Term ID	Source	Term	Definition	Term	Definition
(1)	(2)	(3)	(4)	(5)	(6)
40	ISO/IEC 14662:1997 (3.1.12)	Open-edi scenario	a formal specification of a class of *business transactions* having the same business goal.	scénario d'EDI-ouvert	spécification formelle d'une classe de *transactions d'affaires* partageant le même objectif d'affaires.
41	ISO/IEC 14662:1997 (3.1.10)	Open-edi standard	a standard that complies with the Open-edi Reference Model	norme d'EDI-ouvert	norme qui respecte le modèle de référence pour l'EDI-ouvert.
42	ISO/IEC 14662:1997(E) (4.2.1)	Open-edi system	an *information technology system* which enables an *Open-edi Party* to participate in *Open-edi transactions*	Système d'EDI-ouvert	*système d'information permettant* à un *partenaire d'EDI-ouvert* de prendre part à des *transactions d'EDI-ouvert*.
43	ISO/IEC 14662:1997 (3.1.13)	Open-edi transaction	a *business transaction* that is in compliance with an *Open-edi scenario*.	transaction d'EDI-ouvert	*transaction d'affaires* qui respecte un *scénario d'EDI-ouvert.*
44	ISO/IEC 6523-1:1998 (3.1)	organization	a unique framework of authority within which a person or persons act, or are designated to act, towards some purpose. NOTE The kinds of organizations covered by this International Standard include the following examples. EXAMPLE 1 An organization incorporated under law. EXAMPLE 2 An unincorporated organization or activity providing goods and/or services including. 1) partnerships; 2) social or other non-profit organizations or similar bodies in which ownership or control is vested in a group of individuals; 3) sole proprietorships 4) governmental bodies. EXAMPLE 3 Groupings of the above types of organizations where there is a need to identify these in information interchange.	organisation	cadre unique d'autorité dans lequel une ou plusieurs personnes agissent ou sont désignées pour agir afin d'atteindre un certain but. NOTE Les types d'organisations couverts par la présente partie de l'ISO/CEI 6523 comprennent par ex. les éléments suivants. EXEMPLE 1 Organisations constituées suivant des formes juridiques prévues par la loi. EXEMPLE 2 Autres organisations ou activités fournissant des biens et/ou des services, tels que 1) sociétés en participation; 2) organismes sociaux ou autres à but non lucratif dans lesquels le droit de propriété ou le contrôle est dévolu à un groupe de Personnes; 3) entreprises individuelles; 4) administrations et organismes de l'état. EXEMPLE 3 Regroupements des organisations des types ci-dessus, lorsqu'il est nécessaire de les identifier pour l'échange d'informations.
45	ISO/IEC 6523-1:1998 (3.2)	organization part	any department, service or other *entity* within an *organization*, which needs to be identified for information interchange.	partie d'organisation	n'importe quel département, service ou autre *entité* au sein d'une *organisation*, qu'il est nécessaire d'identifier pour l'échange d'informations.
46	ISO/IEC 15944-1 (3.1.45)	organization Person	an *organization part* which has the properties of a *Person* and thus is able to make *commitments* on behalf of that *organization*.	Personne d'organisation	*partie d'organisation* qui a les propriétés d'une *Personne* et est ainsi capable de prendre des *engagements* au nom de cette *organisation*.

Identification		ISO English Language		ISO French Language	
Term ID	Source	Term	Definition	Term	Definition
(1)	(2)	(3)	(4)	(5)	(6)
			NOTE 1 An organization can have one or more organization Persons. NOTE 2 An organization Person is deemed to represent and act on behalf of the organization and to do so in a specified capacity. NOTE 3 An organization Person can be a "natural person" such as an employee or officer of the organization. NOTE 4 An organization Person can be a legal person, i.e., another organization.		NOTE 1 Une organisation peut avoir une ou plusieurs Personnes d'organisation. NOTE 2 Une Personne d'organisation est considérée représenter une organisation et agir en son nom, et ce à titre de capacité spécifiée. NOTE 3 Une Personne d'organisation peut être une «personne physique» telle qu'un employé ou un agent de l'organisation. NOTE 4 Une Personne d'organisation peut être une personne morale, c.à-d. une autre organisation.
47	ISO/IEC 15944-1 (3.1.47)	Person	an *entity*, i.e., a natural or legal person, recognized by law as having legal rights and duties, able to make commitment(s), assume and fulfil resulting obligation(s), and able of being held accountable for its action(s). NOTE 1 Synonyms for "legal person" include "artificial person", "body corporate", etc., depending on the terminology used in competent jurisdictions. NOTE 2 Person is capitalized to indicate that it is being utilized as formally defined in the standards and to differentiate it from its day-to-day use. NOTE 3 Minimum and common External Constraints applicable to a business transation often require one to differentiate among three common subtypes of Person, namely "individual", "organization", and "public administration"	Personne	*entité*, par exemple une Personne physique ou morale, reconnue par la loi comme ayant des droits et des devoirs, capable de faire des engagements, d'assumer et de remplir les obligations résultantes, et capable d'être tenue responsable de ses actions. NOTE 1 Parmi les synonymes de «personne morale», on trouve «personne juridique», «personne fictive», «corporation», etc., selon la terminologie utilisée par les juridictions compétentes. NOTE 2 «Personne» prend la majuscule pour indiquer que ce terme est utilisé tel que défini officiellement dans les normes et pour le différencier de son usage ordinaire. NOTE 3 Les exigences minima et communes applicables aux transactions d'affaires obligent souvent à faire une différence entre les trois sous-catégories communes de «Personne», notamment «individu», «organisation» et «administration publique».
48	ISO/IEC 15944-1 (3.1.48)	Person authentication	the provision of the assurance of a *recognized Person identity (rPi)* (sufficient for the purpose of the *business transaction*) by corroboration.	authentification d'une Personne	don de l'assurance de *l'identité d'une Personne reconnue* (suffisante aux fins de la *transaction d'affaires*) par corroboration.
49	ISO/IEC 15944-1 (3.1.49)	Person identity	the combination of *persona* information and *identifier* used by a *Person* in a *business transaction*.	identité d'une Personne	combinaison de l'information d'une *persona* et de l'*identificateur* utilisé par une *Personne* dans une *transaction d'affaires*.

Identification		ISO English Language		ISO French Language	
Term ID	Source	Term	Definition	Term	Definition
(1)	(2)	(3)	(4)	(5)	(6)
50	ISO/IEC 15944-1 (3.1.50)	Person signature	a signature, i.e., a *name* representation, distinguishing mark or usual mark, which is created by and pertains to a *Person*.	signature d'une Personne	signature, c.à-d. la représentation d'un *nom*, marque de distinction ou marque habituelle, qui est créée par une *Personne* et se rapporte à celle-ci.
51	ISO/IEC 15944-1 (3.1.46)	persona	the set of *data elements* and their values by which a *Person* wishes to be known and thus identified in a *business transaction*.	persona	série d'*éléments de données* et leurs valeurs selon lesquelles une *Personne* désire être connue et ainsi identifiée dans une *transaction d'affaires*.
52		persona Registration Schema (pRS)	the formal definition of the data fields contained in the specification of a *persona* of a *Person* and the allowable contents of those fields, including the rules for the assignment of identifiers. (This may also be referred to as a *persona* profile of a *Person*).	schéma d'enregistre-ment d'une persona(pRS)	définition officielle des champs de données contenus dans la spécification d'une *persona* d'une *Personne*, et du contenu autorisé de ces champs, y-compris les règles d'attribution des identifiants. (Cette notion peut également être désignée comme le profil *persona* d'une *Personne*).
53	ISO/IEC 15944-1 (3.1.51)	process	a series of actions or events taking place in a defined manner leading to the accomplishment of an expected result.	processus	série d'actions ou d'événements qui se produisent d'une manière définie et qui aboutissent à un résultat attendu.
54	ISO/IEC 15944-1 (3.1.52)	public administration	an *entity*, i.e., a *Person*, which is an *organization* and has the added attribute of being authorized to act on behalf of a *regulator*.	administration publique	*entité*, c.à-d. une *Personne*, qui est une *organisation* et a l'attribut supplémentaire d'être autorisé à agir au nom d'une *autorité de réglementation.*
55	ISO/IEC 15944-1 (3.1.53)	recognized Person identity (rPi)	the identity of a *Person*, i.e., *Person Identity*, established to the extent necessary for a specific purpose in a *business transaction*.	identité d'une Personne reconnue (rPi)	*identité d'une Personne* établie selon les besoins nécessaires d'une *transaction d'affaires* dans un but spécifique.
56	ISO/IEC 15944-1 (3.1.54)	recorded information	any *information* that is recorded on or in a *medium* irrespective of form, recording *medium* or technology utilized, and in a manner allowing for storage and retrieval. NOTE 1 This is a generic definition and is independent of any ontology, (e.g., those of "facts" versus "data" versus "information" versus "intelligence" versus "knowledge", etc.). NOTE 2 Through the use of the term "information," all attributes of this term are inherited in this definition. NOTE 3 This definition covers: a) any form of recorded information, means of recording, and any medium on which information can be recorded; and,	information enregistrée	toute *information* enregistrée sur ou dans un *support* quelle que soit sa forme, le *support* de stockage ou la technologie utilisés, et de façon à permettre son stockage et son extraction. NOTE 1 Cette définition est générique et indépendante de toute ontologie (par ex. le point de vue des «faits» par rapport aux «données», à «l'information», aux «renseignements», à la «connaissance», etc.). NOTE 2 Dans l'utilisation du terme «information», tous les attributs de ce terme sont hérités dans cette définition. NOTE 3 Cette définition couvre les élément suivants: a) toute forme d'information enregistrée, tout moyen

Identification		ISO English Language		ISO French Language	
Term ID	Source	Term	Definition	Term	Definition
(1)	(2)	(3)	(4)	(5)	(6)
			b) all types of recorded information including all data types, instructions or software, databases, etc.		d'enregistrement, et tout support sur lequel l'information peut être enregistrée; et, b) tous types d'information enregistrée, y compris tous les types de données, instructions ou logiciels, bases de données, etc.
57	ISO/IEC 15944-1 (3.1.55)	Registration Authority (RA)	a *Person* responsible for the maintenance of one or more *Registration Schemas* including the assignment of a unique *identifier* for each recognized *entity* in a *Registration Schema*.	organisme d'enregistre-ment	*Personne* responsable du maintien d'un ou de plusieurs *schémas d'enregistrement*, y compris l'attribution d'un *identificateur* unique pour chaque *entité* reconnue d'un *schéma d'enregistrement*.
58	ISO/IEC 15944-1 (3.1.56)	Registration Schema (RS)	the formal definition of a set of rules governing the data fields for the description of an *entity* and the allowable contents of those fields, including the rules for the assignment of identifiers.	schéma d'enregistre-ment (RS)	définition officielle d'un ensemble de règles régissant les champs de données pour la description d'une entité ainsi que le contenu autorisé de ces champs, y-compris les règles d'attribution des identifiants.
59	ISO/IEC 15944-1 (3.1.57)	regulator	a *Person* who has authority to prescribe *external constraints* which serve as principles, policies or rules governing or prescribing the behavior of *Persons* involved in a *business transaction* as well as the provisioning of goods, services and/or rights interchanged.	autorité de réglementation	*Personne* autorisée à prescrire des *contraintes externes* qui servent de principes, de politiques ou de règles régissant ou prescrivant le comportement des *Personnes* concernées par une *transaction d'affaires*, ainsi que la fourniture des biens, services et/ou droits échangés.
60	ISO/IEC 14662:1997 (4.1.2.1)	role	a specification which models an external intended behavior (as allowed within a scenario) of an *Open-edi Party*.	rôle	spécification qui modélise le comportement externe attendu d'un *partenaire d'EDI-ouvert* dans le cadre permis par un scénario.
61	ISO/IEC 14662:1997 (4.1.2.3)	scenario attribute	the formal specification of *information*, relevant to an *Open-edi scenario* as a whole, which is neither specific to *roles* nor to *information bundles*.	attribut de scénario	spécification formelle d'une *information* d'intérêt pour la globalité d'un *scénario d'EDI-ouvert*, qui ne ressortit spécifiquement ni aux *rôles* ni aux *faisceaux d'informations*.
62	ISO/IEC 15944-1 (3.1.60)	seller	a *Person* who aims to hand over voluntarily or in response to a demand, a good, service and/or right to another *Person* and in return receives an acceptable equivalent value, usually in money, for the good, service and/or right provided.	vendeur	*Personne* qui vise à fournir, volontairement ou suite à une demande, un bien, un service et/ou un droit à une autre *Personne*, et qui reçoit en retour une valeur équivalente acceptable, habituellement en argent.
63	ISO/IEC 14662:1997 (4.1.2.2)	Semantic Component (SC)	a unit of *information* unambiguously defined in the context of the business goal of the *business transaction*. A SC may be atomic or composed of other SCs.	Composant sémantique (SC, Semantic Component)	unité d'*information* définie de manière non ambiguë dans le contexte de l'objectif d'affaires de la *transaction d'affaires*. Un SC peut être atomique ou composé d'autres SC.

Identification		ISO English Language		ISO French Language	
Term ID	Source	Term	Definition	Term	Definition
(1)	(2)	(3)	(4)	(5)	(6)
64	This is the generic definition of "standards" of the ISO and IEC (and now found in the ISO/IEC JTC1 Directives, Part 1, Section 2.5:1998) {See also ISO/IEC Guide 2:1996 (1.7)} <<http:www.iso.ch/infoe/intro.html>>	standards	documented agreements containing technical specifications or other precise criteria to be used consistently as rules, guidelines, or definitions of characteristics, to ensure that materials, products, processes and services are fit for their purpose.	norme	accords documentés contenant des spécifications techniques ou autres critères précis destinés à être utilisés systématiquement en tant que règles, lignes directrices ou définitions de caractéristiques pour assurer que des matériaux, produits, processus et services sont aptes à leur emploi.
65	ISO/IEC 15944-1 (3.1.63)	third party	a *Person* besides the two primarily concerned in a *business transaction* who is *agent* of neither and who fulfils a specified *role* or function as mutually agreed to by the two primary *Persons* or as a result of *external constraint*s. NOTE It is understood that more than two *Persons* can at times be primary parties in a *business transaction*.	tierce partie	*Personne*, autre que les deux Personnes concernées en premier lieu par une *transaction d'affaires* et qui n'est le *mandataire* d'aucune d'elles, et qui joue un *rôle* ou remplit une fonction spécifés, selon l'accord mutuel des deux *Personnes* concernées en premier lieu, ou le résultat de *contraintes externes*. NOTE Il est entendu que plus de deux *Personnes* peuvent parfois être les parties de première part dans une *transaction d'affaires*.
66	ISO/IEC 15944-1 (3.1.64)	unambiguous	the level of certainty and explicitness required in the completeness of the semantics of the *recorded information* interchanged appropriate to the goal of a bu*siness transaction*.	non-ambigu	niveau de certitude et d'explicité exigé dans la complétude de la sémantique d'une *information enregistrée* et échangée dans le but d'une *transaction d'affaires*.
67	ISO/IEC 15944-1 (3.1.65)	vendor	a *seller* on whom consumer protection requirements are applied as a set of *external constraints* on a *business transaction.* NOTE 1 Consumer protection is a set of explicitly defined rights and obligations applicable as external constraints on a business transaction. NOTE 2 It is recognized that external constraints on a seller of the nature of consumer protection may be peculiar to a specified jurisdiction.	fournisseur	*vendeur* auquel s'appliquent des exigences de protection des consommateurs comme ensemble de *contraintes externes* sur une *transaction d'affaires.* NOTE 1 La protection des consommateurs est un ensemble de droits et d'obligations explicitement définis, et qui s'appliquent comme contraintes externes à une transaction d'affaires. NOTE 2 On reconnaît que les contraintes externes, telles que la protection des consommateurs, exercées sur un fournisseur, peuvent relever d'une juridiction particulière.

Annex B
(normative)

Codes representing presence-type attributes: mandatory, conditionals, optionals and not applicable

Open-edi scenarios are composed of several building blocks including Open-edi scenario attributes, and role attributes, information bundles (IBs) (as well as attributes of Semantic Components (SCs)). All attributes must be specified at all times, i.e., in order to ensure explicitness and unambiguousness in the formal specification of Open-edi scenarios and scenario components. However, the nature and function of these attributes will differ depending on the context, i.e., the goal of the business transaction. And although all attributes must be specified, the actual values assigned to these attributes may contain statements ranging from "mandatory" to "not applicable" (N/A). Further, at times there are interworkings and dependencies among attributes within each scenario component as well as among the scenario components themselves, i.e., Conditionals.

The five basic presence-type attribute types are:

— Mandatory

— Conditional

— mandatory subject to a Conditional

— Optional; and,

— Not Applicable.

Rule B-1

These presence-type attributes shall be accounted for in OeDT representations of an Open-edi scenario.

The coding convention for "presence" is presented in Table-01[82)].

82) In this table, only the equivalent linguistic expressions in the ISO English, ISO French language and ISO Spanish language equivalents are provided. This table is expandable to cover any number of equivalent linguistic expressions (and their mnemonics), (e.g., German, Russian, Chinese, Japanese, etc.), especially if one uses ISO/IEC 10646-1:200 *Information Technology — Universal Multiple-Octet Coded Character Set (UCS) — Part 1: Architecture and Basic Multilingual Plane/Technologies de l'information — Jeu universel de caractères codés sur plusieurs octets (JUC) — Partie 1: Architecture et plan multilingue de base*. (a.k.a Unicode).

Table-01[83]: Codes Representing Presence-Type Attributes: Mandatory, Conditionals, Optional and Not Applicable

IT Interface		Human Interface / Equivalent Linguistic Expressions					
		ISO English (en)		ISO French (fr)		ISO Spanish (es)	
Table ID (1)	Code (2)	Mnemonic (3)	Expression (4)	Mnemonic (5)	Expression (6)	Mnemonic (7)	Expression (8)
15944-1:01	1	M	Mandatory	O	Obligatoire	O	Obligatorio
15944-1:01	2	C	Conditional	C	Conditionnel	C	Condicional
15944-1:01	3	m	mandatory subject to a Conditional	o	obligatoire en fonction d'un Conditionnel	o	obligatorio sujeto a un Condicional
15944-1:01	4	O	Optional	F	Facultatif	F	Facultativo
15944-1:01	9	N	Not Applicable	S	Sans objet	N	No aplica

Rule B-01:

For all attributes of Open-edi scenarios and scenario components, the presence-type attribute shall be specified by one of the codes of this table.

Rule B-02: Assignment of Codes[84]

Table 15944-1:01 is meant to be exhaustive meaning all the identified business requirements are included.

83) Notes to Table 01:

1) The "(en)", "(fr)", and "(es)" are taken from ISO 639:1988 *Codes for the representation of names of languages/Codes pour la représentation des noms de langue*.

2) The unique and unambiguous Table Identifier is composed of the number and part of this standard, i.e., "15499-1", and the table number within that standard, i.e., "01" using the colon (:) as the separator.

3) The columns for mnemonic, i.e., Columns "3", "4", "5", and "7" represent (1) present linguistic-based characters in use; and, (2) assist in mapping to linguistic neutral codes in Column "2". (Mnemonics are "memory aids/aides-mémoire").

84) This table incorporates some of the elements of development work in progress in support of a new standard. See further ISO/IEC 18022 - *Information technology - Identification, Mapping and IT-enablement of Standards for Widely Used Coded Value Domains*. This standard is under development by ISO/IEC JTC1/SC32 WG2 - Metadata.

Should business requirements, within the scope of this table, be identified which require additional conditions, these can be added. Should the number of required added codes necessitate migrating to double-digit codes, this possibility is foreseen. Change from a single digit to a double-digit code will require change of "9" to "99" for "Not Applicable". The highest possible digit in a numeric code set, i.e., "9", "99", "999", etc., is a reserved code for "Not Applicable".

Addition of any other presence-type codes are considered user extensions and should be registered, i.e., via use of ISO/IEC 15944-2.

Rule B-03:

Code 1 = (Mandatory/Obligatoire/Obligatorio) is deemed to be self-explanatory, i.e., the attribute must have a value.

Rule B-04:

If Code 2 = (Conditional/Conditionnel/Condicional) is used, the Condition must be specified in the form of one or more rules which must include the provisions to be met for the value for the attribute.

Rule B-05:

If Code 3 = (mandatory subject to a Conditional/obligatoire en fonction d'un Conditionnel/_obligatorio sujeto a un Condicional) is used, the Conditional to which the attribute is related must be specified and referenced including dependencies.

Rule B-06:

Code 4 = ((Optional/Optionnel/Facultativo) is exactly that, no conditions of any kind apply.

Whether or not an actual value is assigned to an attribute with a Code 4 is completely discretionary.

Rule B-07:

Use of Code 5 = (Not Applicable/Sans objet/No aplica) is used to state explicitly that the attribute is not applicable and there thus are no values to be found in any instantiation of the attribute.

Examples include those pertaining to there not being any external constraints, specific security or communications service requirements, etc. It is expected that in scenarios developed involving internal constraints only as well as in "simple" scenarios, the Code 5 will be used frequently with respect to the specification of scenarios, scenario attributes and/or scenario components as stated in Clauses 8 and 9 of this standard.

Annex C
(informative)

Unambiguous identification of entities in (electronic) business transactions

C.1 Introduction

1) Annex C provides necessary informative and explanatory text for (1) the rules and guidelines; and (2) the terms and definitions found in 6.1.4 of the Normative part of this standard. The rules and guidelines stated here in bold are the same as those stated in 6.1.4, i.e. rules 5 through 8 and associated guidelines even though they have been re-numbered in this Annex as Rules C.1+.

2) This Annex, like the standard of which it is part, maximizes use of existing ISO and ISO/IEC standards. The source of the contents of this Annex is the need to respond in a pragmatic manner to existing real world issues of the ability to be able to identify and reference with an acceptable level or trust and certainty all the "entities" which comprise parts of a business transaction (e.g. persons, objects, events, processes, etc.). Added here are the challenges of doing the same or better in the dematerialized world of electronic business transactions (e.g. as in e-commerce, e-business, e-government, e-tailing, etc.)

3) This Annex is also meant to assist users of this standard who are either not familiar with Open-edi standards in general or whose main focus to date has been on Functional Services View (FSV) standards only.

C.2 Key Issues

"Unambiguous" is an issue in business transactions[85)] because states of ambiguity and uncertainty are not desired from commercial, legal, 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.

A key objective of this standard for business semantic descriptive techniques is to serve as a methodology and tool for the specification and unambiguous identification of Open-edi scenarios, scenario attributes, and scenario components as re-useable elements in support of common business transactions. These and the related objectives of interoperability and re-usability of Open-edi scenarios and scenario components for business transactions require their unambiguous identification.

Unambiguous identification is required for the registration, referencing and cross-referencing and especially re-use of scenarios, scenario attributes and scenario components

C.3 Basic Assumptions : Entities, Objects and Persons

In global business transactions, common business practices and standards exist for the identification of entities comprising a business transaction including Persons[86)].

85) The terms “business” and “business transaction” are utilized in this Annex as defined in the ISO/IEC 14662 Open-edi reference model. For the definitions of these terms, see above Clause 3 Definitions.

86) See further Annexes D and E.

Rule C-1:

Existing standards shall be used to the greatest degree possible in the building and use of scenarios, scenario attributes and scenario components[87]**.**

Even prior to the use of computer-based technologies, business practices were developed and put into place which assisted in the unambiguous identification of goods being traded worldwide and for people when they travelled to and from various countries. Within existing business practices and information technology standards, there exist standards for the unambiguous identification of entities as material objects in the real world. It is assumed that these existing business practices, standards and techniques in support of common business functions and practices form a useful basis for finding solutions to the issues of unambiguous identification in electronic business transactions not only for goods and services but especially for "Persons" in the dematerialized world of Open-edi.

That is, in existing business transactions, and now even more so in electronic business transactions, there exists a need for the unambiguous identification of all entities which comprise a business transaction.

Information technology standards exist for the unambiguous identification of entities as parts of the global information technology/telecommunications infrastructure.

The term "entity" is defined in the international standard ISO/IEC 2382 "Information technology - Vocabulary" as:

> ***17.02.05*** ***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 Please observe that an entity exists whether data about it are available or not.

> ***17.02.05*** ***entité:*** *tout objet ou association d'objets, concret ou abstrait, existant, ayant existé ou pouvant exister.*

EXEMPLE *Personne, événement, idée, processus, etc...*

NOTE A noter qu'une entité existe que l'on dispose de données à son sujet ou non.

Entities in a business transaction are not only "objects" but also "persons", "events", and "processes".

The term "object" is defined in the international standard ISO 1087:2000, Part 1 as:

> ***3.1.1*** ***object:*** *Any part of the perceivable or conceivable world.*

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

> ***3.1.1*** ***objet:*** *tout ce qui peut être perçu ou conçu.*

NOTE Les objets peuvent être matérials (par exemple : moteur, une feuille de papier, un diamant), immatériels (par exemple: un rapport de conversion, un plan de projet) ou imagianaires (par example une licorne) ".

Standards exist for the unambiguous identification of entities as material objects (or for things viewed as material objects). An example of assignment of unique and unambiguous identifiers to material objects are those represented in both visual and machine-readable form through ubiquitous use of bar code symbology. Another family of standards exist for the unambiguous identification of objects as locations (specified as physical and/or electronic address).[88]

87) 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 D "Existing Standards for the Identification of Persons (Organizations and Individuals) in Business Transactions".

88) Here the ISO/IEC 9594 - Information Technology - Open System Interconnection (OSI) family of standards (also published by the ITU as X.500 Directory Services, X.509 Authentication Framework, etc., provide various approaches, service solutions, for the unambiguous identification of electronic objects with as primary focus the binding of these objects to locations via a unique electronic address.

Unambiguous identification of persons (individuals or organizations)[89] in business transactions has always been peculiar issues to be addressed. 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, i.e., persons, objects, processes, events, etc., the issue has been decomposed into its two key components:

— "unambiguous"; and,

— "identification".

C.4 "Unambiguous"

Rule C-2:

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 as:

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

This definition of "unambiguous":

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

— is a common requirement of all industry sectors;

— is medium neutral, i.e., applies irrespective of the combination of IT technologies or platforms utilized; and,

— applies to all three components of the business transaction, i.e., "person", "process", and "data".

NOTE 1 The term "unambiguous" is not defined in Oxford, Webster, Random House, Larousse, etc., dictionaries nor in international or national standards (including those pertaining to information technology, security services, etc.).

NOTE 2 The dictionaries noted define the prefix "un-" as expressing negation which when affixed to an adjective such as "ambiguous" provides the purely negative form.

NOTE 3 "Ambiguous" (or "ambiguity") is defined in a number of ways as "representing state(s) of uncertainty capable of being understood or interpreted in two or more ways"; "a lack of distinctiveness", "a level of doubt", "not clearly defined", "insecure in its indications and thus not to be relied upon", "d'une situation dont le sens est incertain", etc.

NOTE 4 Based on the results of these key dictionary definitions and other vocabulary tools in the context of the need for "unambiguous identification" in (electronic) business transactions, the key properties of "unambiguous" are "the state of being absolutely certain", "a state not capable of being misinterpreted", "a state to be relied upon", etc.

Guideline C-2G1:

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

That is the goal, i.e., the nature and purpose, of a business transaction determine the level of certainty, i.e., unambiguity, required in the identification of a Person (as well as all the other entities in a business transaction such as the goods, services, financials, etc.).

89) See further 6.2 "Rules Governing the Person Component" and Annex D.

Approaching unambiguity in terms of levels of certainty allows to linkage into and harmonization with levels of assurance in authentication as part of security services and standards.

C.5 "Identification"

The issue of "identification" is separate from and should not be confused with that of "authentication".[90] **Authentication assumes that identification has already occurred.** Standard definitions pertaining to authentication include:

> ***authenticity :*** the property that ensures that the identity of a subject or resource is the one claimed. Authenticity applies to entities such as users, processes, systems and information[91]
>
> ***entity authentication*** : the corroboration that the entity is the one claimed[92]
>
> ***authentication :*** the provisioning of assurance of the claimed identity of an entity.[93]
>
> ***distinguishing identifier :*** data that unambiguously distinguishes an entity in the authentication process[94]

The following guideline provides a summary of the above:

Guideline C-2G2:

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", i.e., the authentication process is a corroboration of an identification process.

The term "identification" is not defined in international standards. The term "(entity) identification" is defined:

> ***(entity) identification :*** a method of using one or more attributes whose attribute values uniquely identify each occurrence of a specified entity[95]

Identification consists of a process using one or more attributes, i.e., data elements, whose value or combination of values together uniquely identify each occurrence for a "specified entity"

The Oxford and Webster dictionaries have definitions for "identification" as both:

- a "process": the action or process of determining what a thing is; to recognize or establish as being a particular person or thing; the action of identifying.
- a "state": the recognition of a thing as being what it is.

Further, both the Oxford and Webster dictionaries define "identity" as:

- the quality or condition of being the same in substance, composition, nature, properties or in particular qualities under consideration (Oxford);
- the state or fact of remaining the same one, under varying aspects or conditions (Webster).

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90) In electronic business transactions, two priority questions often asked; namely: (1) "How do I know who I am dealing with?"; and, (2) "How do I know you are who you say you are?". The first question pertains to "identification". The second question is one of "authentication". All too often one either (1) fails to distinguish between "identification" and "authentication", and/or (2) starts with authentication and security services assuming that "unambiguous identification" has already occurred.

91) ISO/EC TR 13335-1:1996-Information technology – Guidelines for the management of IT Security – Part 1 Concepts.

92) ISO/IEC 9798-1:1997 - Information technology - Security Techniques - Entity authentication mechanisms - Part 1: General.

93) ISO/IEC 10181-2:1996 Information technology - Open Systems Interconnection - Security frameworks for open systems: Authentication framework.

94) Also taken from ISO/IEC 10181-2.

95) ISO/IEC 2382-17 Information Technology Vocabulary - Databases

If "identification" can be assumed to be a process, one key result of such a process is the creation of an "identifier". Several international standard definitions exist for "identifier". These include:

ISO 1087-2 *"Terminology - Vocabulary"* which defined:

> ***Identifier :*** one or more characteristics used to identify or name a data category and possibly to indicate certain properties of that data category

NOTE ISO/IEC 2382-15 has a similar definition for "identifier". {See 15.01.03}

ISO/IEC 9594 - Information technology - Open Systems Interconnection (also published by the ITU X.500 Directory Services) has the concept/term as "distinguishing identifier" which is defined (and also cited in ISO/IEC 10181-2) as:

> ***distinguishing identifier :*** data that unambiguously distinguishes an entity in the authentication process

The response to the question "What is meant by identification?" can be summarized as follows:

1) there are two basic concepts/meanings imbedded; namely:

   — identification as a process; and,

   — identification as a state.

2) identification involves the use of one or more attributes, i.e., data elements, the values of which (or combination of values) uniquely identify the occurrence or existence of a specified entity.

3) identification as the quality or condition of being the same is dependent on what is "under consideration", i.e., the context, purpose and or use of the identification in a business process. Identification is therefore related to the goal of the business transaction within which it is to be utilized.

4) where identification is a process undertaken by an organization, a key result is the assignment/issuance of an (unique) identifier by that organization to the particular instance or occurrence of an object or entity within the process utilized[96)].

5) the same single world object or entity may well have more than one identifier assigned to it depending on the context(s) and identification process(es) of which it can be a part.[97)]

Finally, "identification" both as a process or a state is related to the agreed upon goal of the business in general and within such a context that of each business transaction in particular. As such, there are degrees or levels of detail and specificity to identification. For example, a business transaction in electronic commerce involving a value of $500 or less via debit/credit card, may well require a level of certainty of information for identification which is less than that for a similar business transaction but now one with a value of over $10,000. The same holds true for electronic administration where the value of the assets involved may be low or high even though these values are of a non-monetary nature.

Taking into account:

1) the ISO/IEC 8382-17 definition of "(entity) identification";

2) the various ISO/IEC definitions pertaining to "identifier";

3) the various ISO/IEC definitions pertaining to authentication;

4) the Oxford and Webster dictionaries' definitions for "identification" and "identity"; and,

5) placing these in the context of (electronic) business transactions, the ISO/IEC 15944-1 definition for "identification" is:

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96) Organizations responsible for maintaining an identification process and associated code scheme for the issuance of identifiers an registering the same are commonly known as "Registration Authorities" (RAs) See further in the Normative part of this standard 6.2.3 "Person – Identity and Authentication"

97) See further above 6.2.2 and Annex E.3.1 "Personae and Identification"

Identification : a rule-based process, explicitly stated, involving the use of one or more attributes, i.e., data elements, whose value (or combination of values) are used to identify uniquely the occurrence or existence of a specified entity[98)]

NOTE 1 An identification schema which is part of a standard normally has a Registration Authority.

NOTE 2 Standards exist for the registration of identification schemas in specified domains. Key examples are provided in Annex D "Existing Standards for the Identification of Persons in Business Transactions (Organizations and Individuals).

Rule C-3:

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 view of the fact that multiple different "standard" definitions exist for the term "identifier", each with their own context and purpose, the term "**identifier (business transaction)**" and definition is needed and one which incorporates relevant aspects of these other standards and places them in the context of a business transaction.

The term "identifier (business transaction)" is defined in this ISO/IEC standard as:

identifier (business transaction) : an unambiguous and a linguistically neutral value resulting from the application of a rule-based identification process. Identifiers must be unique within the identification scheme of the issuing authority

NOTE 1 Although an identifier is a single value, this single value may be composed of one or more atomic components. For example, the last number or terminal digit can be a "check" digit, or intelligence may be built into the identifier according to the business rules governing the identification process and the assignment of identifiers by the issuing organization.

NOTE 2 An identifier as a single value can include a combination of the identifier of the issuing organization and the identification number assigned by that issuing organization, i.e., standards such as ISO/IEC 6523, 7501, 7812, etc., are based on this principle.

NOTE 3 Whether an identifier used in a business transaction has built-in intelligence or not is determined by the agreed upon rule base of the issuing authority. Many existing international (and national) standards exist resulting in what are considered "intelligent identifiers". Organizations which wish to map such intelligent identifiers to "non-intelligent identifiers" in their internal applications can use ISO/IEC TR 15452 - "Information Technology -Specification of data value domains"

C.6 Identification Versus Designation (or "Identifiers" Versus "Names")

Rule 4:

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

In global (electronic) business transactions, the same real object is recognized and known by multiple names depending on the language utilized at the human interface. Quoting the ISO/IEC JTC1 BT-EC Report:

"Human beings like to name "objects". But the approach of using "names" is not very IT friendly, cost-efficient or time efficient".[99)]

98) This definition takes into account and supports two key possibilities or options with respect to identification; namely:

Option 1: that a specified entity (or object), i.e., its occurrence or instantiation, will have an identification which is unique and unchanging, i.e., a single permanent unique identifier for an instantiated real world object; and/or,

Option 2: that each occurrence of a specified entity, (e.g., a real world person) {See further below 6.2.4}, can have multiple identifications and resulting identifiers related/relevant to the (explicitly) stated context (or purpose), i.e., business goal.

99) Quote taken from the JTC1/BT-EC Report to JTC1: Work on Electronic Commerce Standardization to be initiated, 1998-05-04, p. 22 (registered as ISO/IEC JTC1 document number N5296).

"Terms and names found in standards (as discussed in 7.1 and 7.2 above) are not linguistically neutral, nor are they IT-processable. In Electronic Commerce, there are specific local requirements which need to be identified.... There is a need to cast international standards in a manner which on the one hand supports unique, unambiguous and linguistically neutral identification and referencing of objects and on the other hand, supports the development of designation of such objects by terms and names in support of localization and multilingual requirements...."[100)]

The international standard ISO 1087 - Terminology - Vocabulary defines "*name*" as:

"name[101)]***:*** *designation of an object by a linguistic expression".*

"nom: *désignation d'un objet par une unité linguistique".*

Consequently, any "object" will have:

1) as many, i.e., multiple names, as there exist linguistic expressions used to designate[102)] it;

2) in global electronic business transactions, many of the "names" used to designate the "object" being traded or a service being provided will be in the form of linguistic expressions which use non Latin-1 Characters, (e.g., Arabic, Chinese, Thai, Hebrew, Japanese, etc., all of which can now be supported via ISO/IEC 10646 a.k.a. Unicode); and,

3) similarly persons (natural or legal) will have more than "one name" including that in their local language and Latin-1 equivalents of the same.

Consequently, "names" are not that useful for unambiguous identification nor can they serve as identifiers for elements in a business transaction. "Name(s)" shall be considered linguistic expression(s) associated with an "identifier"[103)]

Unfortunately, in the world of information technology and within a particular application or information system, a "name" (or "name space") of entity, (e.g., person[104)], object, process, event, etc.), is often used as a synonym for "identifier". This causes major problems in global interoperability from both a business operational view (BOV) and functional services view (FSV) perspective.

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100) Ibid, p.40, (in Section 7.4.5 Localization).

101) This is the definition for "name" found in ISO 1087:1990. The recently revised ISO 1087:2000, Part 1 has placed "name" in Section 3.4 "Designations" as the depreciated term for "appellation". However, working through ISO 1087:2000, Part 1 and the fact that in electronic business transaction one requires "recorded information", i.e. not "verbal", for the purposes of this standard a "name" is considered t o be a "verbal designation" which is recorded as a linguistic expression. Therefore, ISO/IEC 15944-1 will continue to use the concept/term/definition "name" as originally defined.

Appellation" is defined as:

3.4.2 appellation: *verbal* ***designation****(3.4.1) of an* ***individual concept*** *(3.2.2)*

3.4.2 appellation: *verbal* ***designation*** *(3.4.1) of an* ***individual concept*** *(3.2.2)*

102) ISO 1087:2000, Part 1 defines "*designation*" as:

"3.4.1-designation*: representation of a* ***concept*** *(3.2.1) by a sign which denotes it".*

NOTE In **terminology work (3.6.1),** three types of designations are distinguished: symbols, **appellations** (3.2.3) in a specific **subject field** (3.1.2).

*"**3.4.1 designation:** représentation d'une* ***concept*** *(3.2.1) par un signe qui le dénomme".*

NOTE Dans le **travail terminologique** (3.6.1) on dintinque trois types de désignation d'un **concept unique** (3.2.2)

103) One could consider "names" to be "aliases" associated with an "identifier". See further Annex E.3.

104) On “identifiers” versus “names” for Persons, see further 6.2.2 in the normative part of the standard and Annex E “Business Transaction Model: Person Component".

Rule C.7:

Open-edi scenarios, scenario attributes, roles, information bundles, semantic components and other elements pertaining to the same are to be identified through unique, unambiguous and linguistically neutral identifiers. With such identifiers may be associated one or more names as needed for market, legal, localization and/or multilingual requirements.

Annex D
(informative)

Existing standards for the unambiguous identification of persons in business transactions (organizations and individuals) and some common policy and implementation considerations

D.1 Introduction

1) This Annex provides informative and explanatory text in support of (1) the rules and guidelines; (2) the terms and definitions found in Sections 1 through 5 of the Normative part of this standard; and (3) the Open-edi Reference Model (see below D.1 "purpose"). The business rules and guidelines, as stated here in bold, are the same as those stated in these sections even though they have been re-numbered in this Annex. Those which are unique to this Annex D are indicated with an "*".

2) This Annex is also meant to assist users of this standard who are either not familiar with Open-edi standards in general or whose main focus to date has been on the Functional Services View (FSV) only.

3) The focus of this Annex D is to support the "Person component", i.e. the need for unambiguous identification of persons making commitments in an electronic business transaction, in support of this standard and Open-edi.

4) This Annex provides additional required information with respect to existing standards which form part of the Open-edi standards Framework. They are to be used to support the Person component which is one of the three fundamental components of the Business Transaction Model.

5) The primary purpose of the Business Transaction Model is to serve as a common high level and non-technical view of business transactions. The basic assumption of this Business Transaction Model is that this common view is derived from (classical) commerce models with commonly understood (basic) processes as well as with common terms, definitions and perspectives shared by industry, government (especially policy makers), standardizers, consumers, IT specialists and other interested parties.

One key underlying assumption of the Business Transaction Model is that in business transactions, apart from the specific goods or services being provided, there are three essential components in any business transaction; namely:

— Persons[105)] as subjects or parties able to make a commitment(s) arising from a business transaction (at least a buyer and a seller)[106)];

— business processes[107)] and,

— the information or data exchanged[108)]

These three fundamental components are presented graphically in Figure D-1 (as taken from Figure 7 in Section 5.1.5).

105) The use of "Person" with a capital P reflect its use as a defined term in this standard (See 3.1.45) vis-à-vis its ordinary daily use, i.e. as in "person".

106) See further 6.2 "Rules Governing Person" and Annex E(Informative) "Business Transaction Model: Person Component"

107) See further 6.3 "Rules Governing the Process Component" and Annex F (Informative) "Business Transaction Model: Process Component".

108) See further 6.4 "Rules Governing the Data Component" and Annex G (Informative) "Business Transaction Model: Data Component".

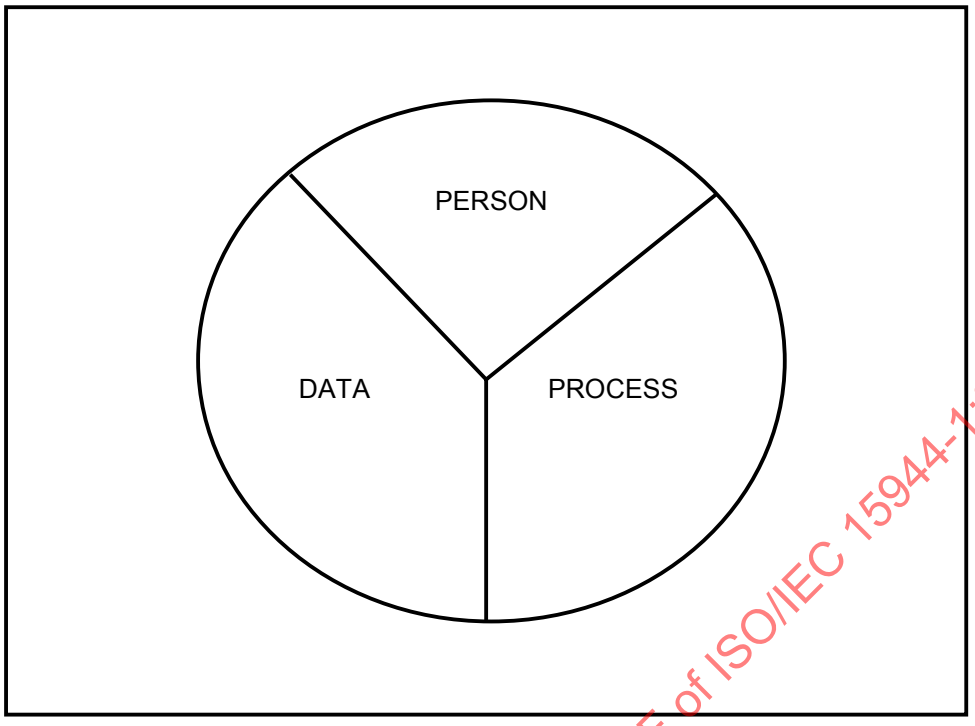

Figure D.1 — Business Transaction Model — Fundamental Elements (Graphic Illustration)

D.1.1 Note on compliance with privacy/data protection, consumer protection, etc.

It is assumed in this standard and throughout this Annex that the collection, storage, use and interchange of recorded information based on these standards is done in compliance with applicable laws and pursuant regulations particularly those which pertain to privacy/data protection requirements, consumer protection, other confidentiality and security services requirements, access and use policies, etc. This applies irrespective of whether a jurisdiction takes a regulatory or self-regulatory approach to compliance with such requirements.

D.1.2 Standards referenced in this Annex

Key standards referenced and taken into account in this Annex include:

ISO/IEC 6523-1:1998, *Information technology — Structure for the identification of organizations and organization parts — Part 1: Identification of organization identification schemes*

ISO/IEC 6523-2:1998, *Information technology — Structure for the identification of organizations and organization parts — Part 2: Registration of organization identification schemes*

ISO/IEC 7501-1:1997, *Identification cards — Machine readable travel documents — Part 1: Machine readable passport*

ISO/IEC 7501-2:1997, *Identification cards — Machine readable travel documents — Part 2: Machine readable visa*

ISO/IEC 7501-3:1997, *Identification cards — Machine readable travel documents — Part 3: Machine readable official travel documents*

ISO/IEC 7812-1:2000, *Identification cards — Identification of issuers — Part 1: Numbering system*

ISO/IEC 7812-2:2000, *Identification cards — Identification of issuers — Part 2: Application and registration procedures*

ISO 8583 (all parts), *Financial transaction card originated messages — Interchange message specifications*

ISO/IEC 9594 (all parts), *Information technology — Open Systems Interconnection — The Directory (This ten-part standard was developed in collaboration with the ITU-T with the identical text published as ITU-T Recommendation X.500)*

ISO/IEC 9798-1:1997, *Information technology — Security techniques — Entity authentication — Part 1: General*

ISO/IEC 10181-1:1996, *Information technology — Open Systems Interconnection — Security frameworks for open systems: Overview*

ISO/IEC 10181-2:1996, *Information technology — Open Systems Interconnection — Security frameworks for open systems: Authentication framework*

ISO/IEC 11179-3:1994, *Information technology — Specification and standardization of data elements — Part 3: Basic attributes of data elements*

ISO/IEC 11179-4:1995, *Information technology — Specification and standardization of data elements — Part 4: Rules and guidelines for the formulation of data definitions*

ISO/IEC 11179-5:1995, *Information technology — Specification and standardization of data elements — Part 5: Naming and identification principles for data elements*

ISO/IEC TR 13335-1:1996, *Information technology — Guidelines for the management of IT Security — Part 1: Concepts and models for IT security*

D.2 Purpose

The first paragraph of Section 1.0 Scope of ISO/IEC 14662 ***Open-edi Reference Model*** (1998) states:

> *"This International Standard specifies the framework for co-ordinating the integration of existing standards and the development of future standards for the inter-working of organizations via Open-edi and provides a reference for such standards".*

The purpose of this Annex D is:

1) to identify and summarize some key existing standards that support unambiguous identification of Persons in business transactions in particular areas relevant to Open-edi. It is the intention that these standards be utilized in the development of scenarios and scenario components requiring the unambiguous identification of Persons making business decisions and commitments; and,

2) to provide a summary of several recurring issues and policy considerations in the unambiguous identification of Persons especially as individuals in electronic business transactions arising from Open-edi related standards development work; namely:

   — anonymity;

   — privacy/data protection;

   — what is an "individual";

   — role of a "natural" person in a business transaction;

   — single global unique "identifiers" for individuals.

The purpose here is to assist users of this standard in dealing with these policy and legal considerations when building **re-useable** scenarios and scenario components.

D.3 Approach and overview

"Unambiguous identification" of Persons, i.e., as entities, able to make the commitments required for a business transaction, is one of the most important issues affecting Open-edi and the need for standards.

International standards exist which focus on specific aspects of naming, addressing and identification of persons (individual and organizations).

The purpose of this Annex D is to provide information on several key international standards to serve as examples of existing standards which focus on unambiguous identification of persons independent of "Open-edi" but already in use in commerce and administration world-wide. These standards should be considered "Open-edi related standards".

NOTE These examples are chosen apart from the very useful international standard ISO/IEC 9594/ X.500 Directory Services which focuses on binding between objects, i.e., not "Persons", and their locations defined as electronic "addresses" in this standard. Further the focus of this X.400/X.500 series of standards is on information exchange and not commitment exchange. {See further Annex C "Unambiguous Identification of Entities in a Business Transaction"}.

Unless stated otherwise use of the term "person" in this Annex D covers both "organization" and "individuals". {See further 6.2.2}

D.4 Existing standards for the unambiguous identification of persons

D.4.1 Introduction

International standards exist and are in use worldwide which ensure in the unambiguous identification of Persons. These are to be used as part of the Open-edi standards framework. Although developed for specific purposes and prior to the advent of the Internet, the global digital economy, e-commerce, e-business, etc., these standards contain specifications for the "WHATs" as well as approaches/solutions for some of the "HOWs" which can (and should) serve as key (generic) building blocks for the Open-edi standards framework.

In the sections which follow are presented and discussed examples of international standards which support the unambiguous identification of:

1) Persons (in general covering both individuals and organizations);
2) organizations[109] and,
3) individuals[110]

D.4.2 Key existing standards

D.4.2.1 Specific standards already identified

Rule D-1[111]

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

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109) The term "organization" is defined in ISO/IEC 6523 and utilized as such in this standard {See further 3.1.41}.

110) The term "individual" has been defined in this standard. {See further 3.1.28}

111) This is a restatement of Rule 4, 6.1.4.

Guideline D-1G1:

Multiple international standards exist and are in use in business transactions worldwide for the unambiguous identification of Persons. These shall be used as part of the Open-edi standards framework.

In the work undertaken in the area of "unambiguous identification" of Persons, the following international standards have already been identified as being of particular relevance, i.e., those of the ISO/IEC. [These standards are presented here in numeric order]. There are likely to be more, (e.g., those pertaining to Directory services, procedures for Registration Authorities, industry sector specific standards, etc.).

ISO/IEC 6523-1:1998, *Information technology — Structure for the identification of organizations and organization parts — Part 1: Identification of organization identification schemes*

ISO/IEC 6523-2:1998, *Information technology — Structure for the identification of organizations and organization parts — Part 2: Registration of organization identification schemes*

ISO/IEC 7501-1:1997, *Identification cards — Machine readable travel documents — Part 1: Machine readable passport*

ISO/IEC 7501-2:1997, *Identification cards — Machine readable travel documents — Part 2: Machine readable visa*

ISO/IEC 7501-3:1997, *Identification cards — Machine readable travel documents — Part 3: Machine readable official travel documents*

ISO/IEC 7812-1:2000, *Identification cards — Identification of issuers — Part 1: Numbering system*

ISO/IEC 7812-2:2000, *Identification cards — Identification of issuers — Part 2: Application and registration procedures*

ISO 8583 (all parts), *Financial transaction card originated messages — Interchange message specifications*

ISO/IEC 9594 (all parts), *Information technology — Open Systems Interconnection — The Directory (This ten-part standard was developed in collaboration with the ITU-T with the identical text published as ITU-T Recommendation X.500)*

ISO/IEC 9798-1:1997, *Information technology — Security techniques — Entity authentication — Part 1: General*

ISO/IEC 10181-1:1996, *Information technology — Open Systems Interconnection — Security frameworks for open systems: Overview*

ISO/IEC 10181-2:1996, *Information technology — Open Systems Interconnection — Security frameworks for open systems: Authentication framework*

ISO/IEC 11179-3:1994, *Information technology — Specification and standardization of data elements — Part 3: Basic attributes of data elements*

ISO/IEC 11179-4:1995, *Information technology — Specification and standardization of data elements — Part 4: Rules and guidelines for the formulation of data definitions*

ISO/IEC 11179-5:1995, *Information technology — Specification and standardization of data elements — Part 5: Naming and identification principles for data elements*

ISO/IEC TR 13335-1:1996, *Information technology — Guidelines for the management of IT Security — Part 1: Concepts and models for IT security*

D.4.2.2 (Global) Unambiguous identification of "Organizations" - ISO/IEC 6523

Rule D-2*:

A widely used international standard exists for the (global) unambiguous identification of organizations (ISO/IEC 6523). This standard should be used as part of the Open-edi standards framework.

This section focuses on summarizing the key aspects of one widely used international standard as a building block for resolving the issue of unambiguous identification of "organizations"[112)] in Open-edi. The formal title of the standard is:

ISO/IEC 6523-1:1998, *Information technology — Structure for the identification of organizations and organization parts — Part 1: Identification of organization identification schemes*

ISO/IEC 6523-2:1998, *Information technology — Structure for the identification of organizations and organization parts — Part 2: Registration of organization identification schemes*

Originally developed in 1984, this standard in Part 1 "*specifies a structure for globally and unambiguously identifying organizations, and parts thereof, for the purpose of information interchange".*

Part 2 *"specifies the procedure for registration of organization identification schemes, and the requirements of International Code Designator Values, to designated identification schemes".*

ISO/IEC 6523 has proved very useful and has recently been revised, updated and enhanced (1997-98). The revised final version was successfully balloted and was been published in 1998.

The British Standards Institute (BSI) is the ISO/IEC Registration Authority for this standard.

ISO/IEC 6523 supports a structured and data element-based approach and is based on the following assumptions/ rules:

- there exists and will continue to exist (and co-exist), multiple schemas and associated systems for the unambiguous identification of organizations, i.e., organization identification schemata. Different schemata exist to support different goals;

- each organization schema is managed by an Issuing Organization (IO). The ISO/IEC 6523 standard requires the issuing organization to provide to the Registration Authority for ISO/IEC 6523, i.e. the BSI (British Standards Institute), precise criteria with respect to the rules governing the assignment of identifiers to each of the participants in a schema as well as criteria specifying who can or cannot be a member of that schema;

- each particular organization identification schema of an Issuing Organization is assigned a unique identifier under ISO/IEC 6523 by the BSI. This schema identifier is known as an International Code Designator (ICD);

- within each identification scheme, a unique identifier is assigned by the Issuing Organization to each (member) organization. This identifier is unique within that particular schema, and is known as an " organization identifier"

- the combination of the ICD plus "organization identifier" supports the global and unambiguous identification of one organization among all other organizations;

- the same real world organization can be part of one or more ISO 6523-based identification schemata (and most often are). Thus the same real world organization will have one or more identifiers all of which are unique and unambiguous (globally).

  A primary reason for this is that organizations play different roles and thus are part of different "clubs", i.e. an Issuing Organization. Some of these roles require stringent qualifications to be met for membership (e.g. not every organization can be a member of SWIFT, i.e. a role qualification) while for other "clubs", almost any organization can be a member {See further below Figure D-3}

112) See 6.2 "Rules governing the Person Component" for definition of "organization" and “organization part”, how ISO/IEC 6523 is utilized in the standard in the context of information exchange and why the added definition of “organization person” is needed to cover the commitment exchange aspects of a business transaction.

— within each organization there may be departments, a service, information systems, or other entities, which need to be identified for information interchange, i.e., as "organization part(s)";[113)]

— each organization part within an organization may need to be assigned an identifier, i.e., organization part identifier (OPI); and,

— at times it may be desired or required to specify the source used for the organization part identifier (OPIS).

A graphic illustration, i.e. Figure D-2, of the four data elements comprising the base structure of ISO/IEC 6523-based identifiers is as follows:

1	2	3	4
ICD	Organization Identifier	Organization Part Identifier	OPI Source

Figure D.2 — Base Structure of Component Parts of an ISO/IEC 6523 based Identifier

The attributes of each data element and its use are specified in Part 1 of ISO/IEC 6523.

The key here is the ICD which is an integer value in the range of 1 to 9999. According to the rules of ISO/IEC 6523, each, ICD value allocated to an organization identification scheme shall be unique and once assigned shall not be re-allocated. ICD numbers are allocated sequentially. The highest current number is "0143+" (There are some gaps. For a complete and up-to-date list, contact the BSI).

Part 2 of ISO/IEC 6523 specifies the procedure and information, i.e., the process and data, required for the registration of organization schemes by issuing organizations (IOs), i.e. those responsible for the operation of an organization identification scheme associated with an ICD.

The registration authority for ISO/IEC 6523 is the British Standards Institute (BSI) which receives and processes applications for additions and amendments to the register of organization identification schemes, assign the ICD values, and maintain the register.

The widespread adoption and use, globally, of ISO/IEC 6523 is demonstrated in Figure D-3 through examples of ICD's already allocated which include:

113) See further above 6.2. "Rules Governing the Process Component" (and in particular 6.2.7) for the definition of "Organization Part" and how it is utilized in this standard as well as Figure 17.

Figure D.3 — Sample of ISO/IEC 6523 allocated ICDs with associated Name of Coding System and Coverage Information

ICD	NAME OF CODING SYSTEM	COVERAGE
0002	System Information et Repertoire des Enterprises et des Etablissements: SIRENE	Enterprises (individual enterprises or companies) in the field of agriculture, industry, trade services. Associations, authorities, regional authorities and public establishments active in France (over 3,300,000 registrations). The only "official" number used between authorities and organizations when dealing with data interchange on organizations.
0005	USA FED GOV OSI Network	Any organization that participates in GOSNET which encompasses governmental offices throughout the world. The ICD code forms the initial part of the OSI network addressing and naming tree
0029	The All-Union Classifier of Enterprises and Organizations	All organizations in the USSR/Russia
0030	AT&T/OSI Network	Any organization in an AT&T/OSI network environment. This program encompasses organizations throughout the world
0034	Reuters Open Addressing Standard	Reuters and associated companies, their customers and suppliers
0037	LY-tunnus	All organizations in Finland including juridical persons and associations
0038	Australian GOSIP Network	Australian government departments at federal, state, local levels, etc.
0041	Citicorp Global Information Network	Any company or organization that participates in a Citicorp Global Information Network environment (world-wide)
0049	Auckland Area Health	Health related organizations in New Zealand
0052	Society of Motion Picture and Television Engineers (SMPTE)	Any organization which operates within or distributes to establishing SMPTE practices
0060	Data Universal Numbering System (D-U-N-S)	Dun and Bradstreet. The DUNS numbers have world-wide recognition as a means of identifying businesses and institutions
0064	UTC: Uniform Transport Code	The shipping and transport industry. The code identifies an individual transport or handling unity, (e.g., pallet, parcel), for reasons of tracking or tracing.
0069	SITA Object Identifier	Airlines, air manufacturers, etc., i.e., users of SITA Worldwide Telecommunications and Information Services
0073	ICD Formatted ATM Address	Private ATM networks using Newbridge terminal switching equipment
0078	Mitel terminal or switching equipment	Networks using Mitel terminal or switching equipment
0080	UK National Health Service Scheme	Scope = "legal entities" of the UK Health care community, GPs, GDP, NHS Hospital Trusts, Health Authorities, Laboratories, Blood Transfusion, etc.
0085	Swiss Chambers of Commerce Schema	Organizations (legal persons, partnerships, sole proprietorships and their branch offices) registered in the business register or organizations (legal or natural) not registered in the business register
0088	EAN Location Code	European Article Numbering system. Over 300,000 participants (mainly manufacturers) in over 66 countries
0090	Internet IP Addressing ISO 6523 ICD Encoding	IANA - any organization in the Internet environment

ICD	NAME OF CODING SYSTEM	COVERAGE
0093	Revenue Canada Business Number Registration	Unique identification of private and public sector entities, i.e., registrants, government programs and operating entity(ies). Used for GST. {See Treasury Board Information Standard (TBITS)-30 - Business Number <<http:/www.tbs-sct.gc.ca/its_nit/SIGS/ITSN122/30C_e.html}
0111	Object Identifiers	IEEE including RAC (Registration authority committee and other sub-entities for SMPTE 298M Universal Labels for Unique Identification of Digital Data, an ISO/ITU-based identifier hierarchy registration system
0117	STENTOR - ICD Coding System	Coding system used within Stentor's ATM network to identify ICD NASP end points. ICD Code used to form Initial Domain part of the OSI Network Address as specified in Annex A of ISO/IEC 8348:1993
0126	GTE/OSI Network	Any organizations in a GTE/OSI network environment throughout the world.
0128	BNCR (Telekurs Banken Clearing Number)	Swiss banking institutions (sponsored through SWIFT - Society for Worldwide Interbank Financial Telecommunications)

The examples[114)] of ISO 6523 identification schemes, presented above, demonstrate that a standard exists which is already used extensively worldwide in commerce (and administration). **This standard already supports many Open-edi applications**. The above examples represent:

— country-based schemes of both a general and particular nature, (e.g., SIRENE schema of **France**, ICD = 0002; the LY-tunnus schemata of Finland, ICD= 0037; the **Canadian** Business Number (BN) Registration schema, ICD = 0093, etc.;

— telecommunication sector uses both with respect to "switching" equipment and communication services;

— the IP addresses utilized in the Internet, i.e., through IANA; {See under ICD = 0090}

— a schema in support of government-based open system interconnect programs (GOSIP) in various countries as well as departments of Defence;

— identification of articles, i.e., manufacturer ID + product number, being traded world-wide as well as their units of packaging, (e.g., pallets, parcels, containers), visually recognized through the ubiquitous use of bar codes, (e.g., ICD=0088, EAN Location Codes);

— key industry sectors such as banking, security and related services, health, airlines, aeronautics, automobile, entertainment/motion pictures, etc.; and,

— major enterprises providing goods and services on a worldwide basis.

International standards, mechanisms and procedures thus already exist for the unambiguous identification of organizations not only worldwide but also in support of various roles that an organization can play. With respect to a particular role of an organization in a real world transaction, it will utilize the applicable (registered) identification scheme and the associated unique identifier.

114) The examples are taken from ISO/IEC 6523 Information technology - Structure for the identification of organizations and organization parts. **List B:** The numerical list of all ICDs that have been issued. (July 1999). The assistance of Doug Langlotz, Standards Council of Canada (SCC), in obtaining this updated List B is appreciated.

It is also useful to note that in 1995-1996, the European Commission and Industry Canada together took a lead role in resolving the issue of "unambiguous and unique identification of organizations world-wide" required for EDI. The approach taken was to resolve the issue through enhancing the procedures and criteria associated with the applicable international standard ISO/IEC 6532. This was accomplished as part of the EDIRA project (EDI Registration Authorities) as a component of the TRI-EDI initiative (Telecommunication Requirements for International EDI). The EDIRA project successfully addressed the need for harmonization and interoperability between on the one hand ISO/IEC 6532-based identification of organizations including X.500, and on the other, different structures and approaches in use at that time in electronic data interchange (EDI) based on use of ANSI X12 standards and UN/EDIFACT. A common solution was found, i.e. through the determination of whether an ISO/IEC 6523 applicant is EDIRA compliant, and, if so, the BSI noting this as part of the ICD registration. (As part of this project, Revenue Canada was successfully registered internationally as the Issuing Organization (IO) for the Business Number (BN) identification scheme, a.k.a. TBITS-30 Business Number)[115].

D.4.2.2.1 ISO/IEC 6523 and the identification of “Roles” in scenarios and scenario components

Of particular interest here in the context of construction and registration of re-useable scenarios and scenario components is the linkage between ICDs assigned under ISO/IEC 6523 and the unambiguous identification of “**roles**”.

Many of the schemata for the identification of organizations contain rules which qualify whether or not an organization is qualified for a certain role. These ICDs are therefore useful in the development of scenario and scenario components both for those involving internal constraints only as well as those involving external constraints.[116] Many of the ICDs as taken from Figure D.3 above are of this nature and include as examples:

- ICD=002, SIRENE. In France, the only “official” number for the identification of organizations which interchange data with authorities.
- ICD=0080, UK Health Service. “Legal entities” of the UK health care community
- ICD=0088, EAN Location Code. Organizations which qualify for and participate in the European Articling Numbering System
- ICD=0128, BCNR. Swiss banking institutions.

D.4.2.3 (Global) Unambiguous identification Of "Buyers And Sellers" - ISO/IEC 7812[117]

Rule D-3*:

An international standard exists for the (global) unambiguous identification of persons as "buyers" and "sellers", i.e. ISO/IEC 7812. This standard should be used as part of the Open-edi standards framework.

This section focuses on summarizing the key aspects of the international standard:

ISO/IEC 7812-1:1993, *Identification cards — Identification of issuers — Part 1: Numbering system*

ISO/IEC 7812-2:1993, *Identification cards — Identification of issuers — Part 2: Application and registration procedures*

This standard is one of a suite of standards developed by another ISO/IEC JTC1 committee namely JTC1/SC17 *Identification cards and related devices*. This standard, which has been in use for near fifteen years, is in its third edition, (issued 1993) and is currently under its scheduled five-year review. The main challenge of SC17 is that of accommodating market-driven needs, diverse industry applications and a variety of information technologies.

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115) The results of TRI-EDI II projects are freely available, i.e., the results have been published on CD-ROM with copies deposited in key public libraries worldwide. The bibliographic citation is:

116) See further 6.1.6 "Business Transaction Model: Classes of Constraints".

117) Technically, ISO/IEC 7812 pertains to identification cards. However, the major users of this standard are banks, financial institutions and other issuers of credit/debit cards (as well as major retailers). Persons use these credit/debit cards in the role of sellers and buyers for payments and fund transfers accompanying business transactions.

ISO/IEC 7812 is *"one of a series of standards describing the parameters for identification cards and the use of such cards in international interchange".*

The standard specifies a unique pre-defined structure and the data elements for the identification of card issuers and individual account numbers for the purpose of identifying an account. The resulting "identification number", i.e., the number that identifies the card issuer and card holder, is designed to be globally unique and unambiguous, i.e. within the ISO/IEC 7812 user domain.

Since (1) credit/debit card issuers (as well as other identification card issuers) are the prime users of this standard; and (2) these cards are used to buy and sell goods and services, they serve as a primary building block for the unambiguous identification of buyers and sellers in (electronic) business transaction.

The predefined structure and data elements of this standard are the following:

1) recognizing that identification cards are utilized in many industry sectors in various applications, a single digit is used to support a major industry classification system with the permitted code values pre-assigned. This Major Industry Identifier (MII) is used to identify the major industry of card issuer as follows as listed in Figure D-4:

Figure D.4 — Assignment of Major Industry Identifier s under ISO/IEC 7812

MII	MAJOR INDUSTRY ASSIGNED TO*
0	for assignment by ISO/TC 68 and for other future industry assignments**
1	Airlines
2	airlines and other future industry assignments
3	travel and entertainment
4	banking/financial
5	banking/financial
6	merchandising and banking
7	Petroleum
8	Telecommunications and other future industry assignments
9	for assignment by national standards bodies

NOTE * The standard states "The MII does not in anyway reflect or limit the application in which the card is useable. The single digit MIIs are assigned using the applicant's description of their main area of business on the application form. {See Annex A of ISO/IEC 7812-2}

NOTE ** Ten thousand numbers in the range "00" have been allocated to ISO/TC 68 for assignment to institutions other than card issuers in order to accommodate requirements in ISO 8583, *Financial transaction card originated messages — Interchange message specifications.*

NOTE *** Within ISO/IEC JTC1 SC17 and the financial/banking community, discussions are under way on dropping the "Major Industry Assigned To" areas for the MII. Major factors are the blurring of classification of industry sectors (from that perceived 15 years ago) and the need to free up unused blocks of numbers to meet exploding demand (much like that for area codes in telephony).

2) the assignment of a unique five digit identifier to a card issuing institution that meets the registration requirements as specified in Part 1 of ISO/IEC 7812.

3) the third data element is the individual account identification, a variable length, maximum 12-digit number. {See ISO 7811-3, *Identification cards — Recording technique — Part 3: Location of embossed characters on IS-1 cards*}

4) the final data element is a single check digit calculated on all the preceding digits of the identification number computed according to the Luhn formula for modules-10 check digit (explained in Annex B of Part 1 of ISO/IEC 7812).

A graphical representation is presented in Figure D-4

Issuer Identifier Number (IIN)			
MII	Issuer Identifier	Individual Account Identification	Check Digit
☐	☐ ☐ ☐ ☐ ☐	☐ ☐ ☐.... ☐	☐
Identification Number			

Figure D.5 — Structure of the Parts Comprising the ISO/IEC 7812 Identifier

The Issuer Identifier Number (IIN) forms the first part of the identification number. It is composed of two elements, the MII and Issuer Identifier. The IIN is unique and unambiguous globally. If the MII is dropped, the Issuer Identifier Number will stay at six (6) digits and the Issuer Identifier will become six (6) digits instead of the present five (5).

Part 2 of this standard specifies the application and registration procedures including criteria for numbers issued in accordance with Part 1. The effective management of the numbering system for the identification of card issuers is done through a Registration Management Group (RMG), a.k.a., ISO/IEC JTC1/SC17/WG5.

The Standards Department, American Bankers Association (ABA), maintains the ISO/IEC register of card issuer identification numbers. It is the international Registration Authority for ISO/IEC 7812 and is the one that issues the Issuer Identifier Number (IIN) to successful applicants.

D.4.2.4 (Global) Unambiguous identification of individuals - ISO/IEC 7501

Rule D-4*:

An international standard exists for the (global) unambiguous identification of holders of machine readable travel documents (MRTDs), i.e. ISO/IEC 7501. This standard has components which should be part of the Open-edi standards framework.

Individuals have identification cards based on ISO/IEC 7501 for travel documents, ISO/IEC 7812 for identification cards (including credit/debit cards), as well as many other documents/cards identifying individuals. The common designation of an ISO/IEC 7501 identification "card" is a passport or visa. ISO/IEC 7501 is a multi-part standard consisting of the following:

ISO/IEC 7501-1:1997, *Identification cards — Machine readable travel documents — Part 1: Machine readable passport*

ISO/IEC 7501-2:1997, *Identification cards — Machine readable travel documents — Part 2: Machine readable visa*

ISO/IEC 7501-3:1997, *Identification cards — Machine readable travel documents — Part 3: Machine readable official travel documents*

These standards are currently undergoing revision. This revision is incorporating "cultural adaptability" requirements as well as co-existence requirements of different technologies on a single card, (e.g., embossing, magnetic stripe, bar coding, integrated chip, optical storage, visual, etc.). The results of this revision will impact many other international and national standards pertaining to the unambiguous identification of individuals.

Another major objective of the next edition of ISO/IEC 7501 is "global interoperability", particularly with respect to the standardized specifications for placement of both eye-readable and machine-readable data in all MRTDs.

This standardization work is a co-operative effort of (1) ISO/IEC JTC1 SC17 - Identification Cards and Related Devices; and, (2) the International Civil Aviation Organization (ICAO). ICAO is the UN organization through which member countries establish policies, rules and standards worldwide in the area of civil aviation. (It is headquartered in Montreal) The next edition, (1999/2000) of ISO/IEC 7501 is being prepared through ICAO Document 9303, Parts 1, 2 and 3.

The present new draft of DOC 9303 uses terms such as "person", "holder", "name of holder", etc., but does not explicitly state that only a natural person as an "individual" can be a "holder" of a machine-readable travel document, i.e., not a legal person. This was always assumed implicitly. From an Open-edi perspective, these criteria should be made explicit. (Person also is not defined in this standard).

NOTE The same Person, as an individual, can have more than one global ISO/IEC 7501-based identifier, i.e., hold more than one passport, depending on the rules of the Issuing State(s)].

D.4.3 Conclusions

The existing international standards identified above have common requirements for data, i.e., data elements pertaining to a Person. The data element values are structured and pre-defined. It is recognized that each of these standards has a specific focus and scope. All of them, however, are relevant to standardization requirements in support of (electronic) business transactions, a.k.a. e-commerce, e-business, e-government, etc.

Rather than creating new standards, it is strongly recommended that those utilizing the Open-edi standardization framework and this ISO/IEC 15944 standard place a priority on utilizing existing standards in an integrated manner to create generic base standards. Another term here would be a generic bridge standard, i.e., the need for a data element-based generic standard for unambiguous identification of Persons (individuals).

Rule D-5*:

The number of data elements pertaining to Persons, generally, and individuals and organizations specifically comprising common/basic name and address information is finite. Many have already been defined in various international standards (as well as in government standards)[118]. They should be consolidated/integrated.

1) Identification of Persons

   — ISO/IEC 6523 — *Structure for the Identification of organizations and organization parts*

   — ISO/IEC 7501 — *Identification cards — Machine readable travel documents*

   — ISO/IEC 7812 — *Identification cards — Identification of issuers*

2) Identification of Address (and Persons/Personae)

   — ISO/IEC 9594/X.500 Directory Services (focuses on bindings between objects and their locations).

Any project for the development of a standard(s) for naming, addressing and identification to support unambiguous identification of persons in electronic business transactions, should be based on the following development principles:

   — support a structured and data element-based approach;

   — focus on the common, generic requirements but allow for "user extensions";

   — utilize and integrate relevant international standards (or parts thereof);

   — be modular and have the ability to support various levels of details, i.e., granularity, thereby providing flexibility in its use in heterogeneous applications;

   — ensure the ability to support requirements of privacy legislation, public and private sector;

   — maximize facilitation of interoperability of data elements pertaining to name, addresses and identification data among players in electronic commerce, i.e., as required in business transactions (and in compliance with applicable legislation); and,

   — be IT-platform neutral and independent of specific applications.

118) See for example the (600 page) Treasury Board Information Technology (TBITS)-37 "Naming and Addressing" standard of the Canadian federal government. This standard, which integrates over 23 international standards, is available for free (e.g. via CD-ROM).

D.5 Some common policy and implementation considerations for unambiguous identification persons as individuals

D.5.1 Introduction

In Open-edi and related standards development work, on the Business Operational View, the need to be able to address legal requirements in (electronic) business transactions is a recurring issue, especially those external constraints which are of a horizontal public policy nature.

It is not the purpose of this and other Open-edi related standards to attempt to resolve these issues. However, it is useful to help reduce misunderstanding about some common external constraints.

This is the purpose and context of Section D.4. One major area of public policy issue impacting electronic business transaction is that of the interactions of:

— individual ↔ organization; and,

— individual ↔ public administration

{See Normative part, 6.1.3 and 6.1.7}.

At the time that the Open-edi Reference Model was developed, individuals, on the whole, participated in EDI-based business transactions with each other only via organizations. The rapid world-wide development and use of the Internet in support of business transactions has led to (1) individuals engaging in business transactions directly with organizations, i.e., without organizations acting as agents on their behalf, as well as (2) 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. {See further on the entity "person(s)" and its Level 1 sub-components, above in Section 5.2 "Rules Governing the Person Component"}.

Five key policy issues associated with the unambiguous identification of Persons, especially as "individuals", in electronic business transactions include:

— anonymity;

— privacy/data protection[119)]

— what is an "individual";

— role of a "natural" person in a business transaction, i.e. as an "individual" or "organization person";

— single global unique "identifiers" for individuals.

These five key policy issues and their resolution are interrelated. They are summarized in the sections which follow.

The approach to a standards-based resolution of these policy issues presented here is based on the following assumptions:

1) Privacy/Data Protection is already a major concern of consumers with respect to electronic commerce as is the wider issue of building trust.

2) The need for unambiguous identification is relative to the context and purpose and associated requirements of the nature of the business transaction in which it is to be used.

119) With respect to consumer protection aspects, see 6.2.8 "Person and External Constraints: Consumer and Vendor".

Consequently, in electronic business transactions, there may be levels of "unambiguity", i.e., degrees of completeness or reduction of uncertainty in identification[120].

3) The higher the level of degree of certainty, i.e., unambiguity, of the identification of a person, the less costly and more efficient the process for determining authenticity.

4) The need for unambiguous identification of individuals, their desire at times for anonymity, and a co-ordinated implementation of the Open-edi standards framework requires a clear response as to which of the two options presented in this Annex D should be the "base" option.

D.5.2 Anonymity

Rule D-6*:

Identification of a Person as buyer in a business transaction is not always necessary in (electronic) business transaction including the seller knowing whether or not the buyer is an individual.

In day-to-day use in business transactions, as well as now electronic business transactions, one usually speaks of clients, consumers, customers, etc., not so much of "individuals" or "organizations". However, it is the adoption of electronic commerce by individuals which has one of the highest profiles in the development of strategies for the widespread adoption and use of electronic commerce by the private and public sector alike.

From an electronic commerce (or e-business) perspective, one often does not need to distinguish whether the entity which is party to a business transaction is a "natural person" or "legal person", nor an "individual" or "organization", etc. Credit worthiness, ability to pay, secure payment, etc., of a "Person" are often more important criteria.

Currently, a buyer can remain anonymous vis-à-vis a seller by presenting a money value token[121] in which a seller has 100% trust, (e.g., cash). Similarly in electronic commerce where the value token when presented by the buyer to the seller has 100% trust of the seller, the buyer can also remain anonymous (provided the "E-cash" really has the nature of cash, and does not identify the bearer or holder of the token). Similarly, if a Person (undifferentiated as to organization or individual) with an e-mail address of "diamondsR4ever@aol.com" presents an acceptable value token which does not link value token to buyer, the buyer can remain anonymous to the seller.

Thus in electronic business transactions, unambiguous identification does not necessarily require one to distinguish the nature, i.e. sub-type, of the Person in a business transaction, i.e., whether the Person is an individual or organization (or an organization Person).[122]

The Process Component of the Business Transaction Model has five basic sets of activities should be noted, i.e., Planning, Identification, Negotiation, Actualization and Post-Actualization.[123] In the Planning set of activities, that is, the first phase in a business transaction, (prospective) buyers and sellers can and do often remain anonymous to each other. The fundamental characteristic of the Identification Phase is that of establishing one-to-one bindings among the parties (potentially) involved in a business transaction.

120) For definitions of the terms "unambiguous" and "identification", see above 6.1.4 "Business Transaction: Unambiguous Identification of Entities".

121) The term "value token" is a generic term used to cover values of a monetary nature such as cash, money orders, bearer bonds, pre-paid value tokens, etc.

122) Privacy concerns of individuals who are worried about who knows what you see and spend online on the Internet with whom, for what, etc., are giving rise to "anonymization services". Disabling "cookies" on one's browser's preferences increasingly prevents prospective buyers from exploring websites of sellers. Such services allow one (1) to browse the Web and go anywhere "cookie free"; (2) to send e-mail through a middle man "remailer"; (3) an anonymous website to allow anyone (individual or organization) to have a homepage without identifying themselves; (4) to support the use of synonyms, etc. {See further, Time, February 8, 1999, p. 62, or visit <<www.anonymize.com>>}.

123) See 6.1.5 and 6.3 "Rules Governing the Process Component".

D.5.3 Privacy/data protection

Privacy/data protection[124] pertains to sets of rights and obligations pertaining to the collection, use and disclosure of personal information. Personal information is defined as "meaning information about an identifiable individual that is recorded in any form". Initially, privacy rights and obligations pertained primarily to personal information collected, used and controlled by the public sector, (e.g., by federal as well as state/provincial levels of government). In addition, specific sectors and activities have their own sets of "privacy" requirements, (e.g., banking records, medical records, student educational records, etc.).

However, while initially privacy/data protection requirements were focused on specific types of business transaction and/or business sectors, these requirements are rapidly becoming generalized for the whole of the public and private sectors in many countries as well as all the countries that are members of the European Union.

Within the context of this Annex D, a common working definitions for "privacy" is:

> *"**Privacy:** most often defined as the right to be left alone, free from intrusion or interruption, privacy is an umbrella term, encompassing element such as physical privacy, communications privacy, and information privacy[125]. Privacy is linked to other fundamental human rights such as freedom and personal autonomy".*
>
> *"**protection de la vie privée**: Définie le plus souvent comme le droit à ne pas être dérangé, libre d'intrusion ou d'interruption, la protection de la vie privée est un terme générique englobant des éléments comme la confidentialité matérielle, la confidentialité des communications et la confidentialité des renseignements. La protection de la vie privée est liée à d'autres droits fondamentaux comme la liberté et l'autonomie individuelle".*

Similarly a working definition of "personal information" here is:

> *"**personal information:** Any information about an identifiable individual that is recorded in any form, including electronically or on paper. Some examples would be information about a person's religion, age, financial transactions, medical history, address, or blood type".*[126]
>
> *"**renseignements personnels:** Tout renseignement au sujet d'un individu identifiable, qui est enregistré sous une forme quelconque, y compris électroniquement ou sur papier. Cela comprend, par exemple, les renseignments à propos de la religion, de l'âge, des opérations financières, du passé médical, de l'adresse ou du groupe sanguin de quelqu'un".*

It is outside the scope of this Annex D to discuss this matter further. It suffices to note that one key objective of the development of the Business Transaction Model is the ability to support the privacy/data protection requirements for the implementation of Level 1 - External Constraints on Business. These challenges include defining what is an "individual" and what are the criteria for an "identifiable individual" from an IT-enablement perspective.

However, it should also be noted that the basis and point of departure of the classes of constraints in the Business Transaction Model is that of involving internal constraints only, i.e. no external constraints, and with "Person" undifferentiated, i.e., one need not distinguish whether the Person is an "individual" or "organization".

Once can thus develop generic and re-useable scenarios and scenario components involving internal constraints only for use in business transactions. Scenarios and scenario components built to support requirements of external constraints such as those of a privacy/data protection nature would use, i.e. inherit, these existing scenarios and scenario components involving internal constraints only.

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124) In North America, i.e., Canada and the USA, "privacy" is the term used. In other countries, the term "data protection" is used, (e.g., those countries who are members of the European Union and others).

125) Key requirements of Privacy with respect to recorded information about an identifiable individual include:

1. Informed consent by the individual as to the purpose and use such recorded information
2. Ensuring that such recorded information is timely, relevant and accurate (and if ,not deleted)
3. Dispute resolution processes as to accuracy and use of such recorded information.

126) In some jurisdictions, privacy/data protection legislation can apply to electronically, i.e., computer system-based, recorded information only.

D.5.4 What is an "individual" and what are criteria for identifiable individual?

One needs to have a definition for individual in the dematerialized world of business transactions, i.e., what are the unique attributes and behaviours of "individual" which allows one to distinguish "individual" as a unique entity/object from all the other objects one's information system is dealing with?

No standard definition, internationally or domestically, currently exists for "individual"[127] A review of terminology of international standards could not identify a standard which contained and defined the concept/term "individual". Rather international standards tend to define particular roles of an individual in a business process along with associated data elements, (e.g., passport holder, cardholder, entity, etc.).

The concept/term "individual" needs to be defined in a consistent manner not only in the context of existing and future Privacy/Data Protection requirements but also as a component of medium neutral legal/regulatory frameworks. This has been done in this ISO/IEC 15944 standard.

Rule D-7*:

"Individual" is the attribution of the property of indivisibility to a natural person, i.e., in making commitments, ability to have rights and obligations, being accountable/responsible for, etc.

Consequently, for the purposes of this standard "individual" has been defined as:[128]

> ***"individual***[129] *A Person, who is a human being, i.e., natural person, who acts as a distinct indivisible entity or is considered as such".*

The use of the term "Person" in the definition of "individual" means that an "individual" inherits all the properties and behaviours of "Person". Secondly, the definition is neutral towards and independent of:

- the manner in which various jurisdictions have differing rules as to what criteria must be met for an entity to be considered/qualify as a "human being" or "natural person";
- any qualification which a jurisdiction may place on human being/natural person with respect to ability to make commitments, be held responsible for, etc., (e.g., "minors", "being incapacitated", etc.).

Constraints of this nature exist in both the legal and commercial frameworks but are part of "External Constraints"[130] of the Open-edi Model impacting electronic business transactions.

This definition is harmonized with basic concepts underlying privacy. "Personal information", 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 or service provided by that other person in the role of seller.

While this definition of "individual" serves as a common base, i.e., as part of a set of minimum external constraints, one needs to have specific criteria for what constitutes "identifiable" as in "identifiable individual". Currently such criteria do not exist. Further, the interplay of the issue of "anonymity and unambiguous identification needs to be addressed.

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127) A review of international standards (using the online ISO Internet-based tools at hand) did not identify any standard which contained and defined the concept/term "individual". International standards that one might expect to contain a definition for "individual" tend to define particular roles of an individual in relation to a specific business process along with associated data elements, (e.g., passport holder, (credit) card holder, or more generically "token holder", etc.

128) See further 6.2. "Rules Governing the Person Component" and specifically 5.2.7 "Person and External Constraints: Individual, Organization and Public Administration" as well as Annex E (Informative) - Business Transaction Model: Person Component.

129) See 3.1.27.

130) See further 5.1.6 "Business Transaction Model: Classes of Constraints".

D.5.5 Role of natural person in a business transaction as "individual or organization" (or "organization person")?

With respect to business transaction and the application/implementation of the Level 1 Privacy/Data Protection requirements, one will need to be able to determine in the Identification Phase of the Process Component,[131] when one is marketing/selling goods and/or services, whether the person one is dealing with is an identifiable individual or not, i.e., an "individual" or an "organization"(or "organization person[132]). If the former, Privacy/Data Protection requirements would apply, if the latter, these would not apply, (and to the information on a "Person").

Consequently, from an electronic business transaction perspective, it is necessary to have a clearly understood definition of "organization", i.e., if one is dealing with an "organization" and not an "individual" (e.g. for the associated information on an organization, Privacy/Data Protection requirements would not apply). There is an international standard definition for "organization" which also is utilized in this standard, i.e., ISO/IEC 6523. (See further Section 5.2.5 and Annex E)

As a result of standard development work on this issue the following points were made:

— individual is a natural person with a specific role(s) in a process;

— a natural person in the role of a buyer also supplies information;

— a natural person in the role of a "buyer" is the recipient of a good and/or service.

A key question is whether information provided by a natural person in the role of a buyer is deemed to be, i.e., to be treated as, that pertaining to an "individual" or an "organization"?

In many jurisdictions, and in the context of the Goods and Services Tax (GST) or value-added Tax (VAT), anyone who provides a good or service is deemed to be an organization, irrespective of whether the good or service provided is zero rated, exempt, or the goods/services provider is exempt; or the person providing the good or service is an incorporated person, (e.g., "legal" person) or not.

ISO/IEC 6523 takes a similar approach in its definition of "organization" (which is adopted as a normative reference in this standard).

Note b) of the ISO/IEC 6523 definition of "organization" states:

NOTE The kinds of organizations covered by this part of ISO/IEC 6523 include the following examples

EXAMPLE b) an unincorporated organization or activity providing goods and/or services..."

In summary ISO/IEC 6523 considers, any Person irrespective of their particular "legal" status (including unincorporated natural persons), who provides a good and/or service is deemed to be an "organization". This Open-edi standard takes a similar approach, i.e., any Person in the role of a seller in a business transaction is deemed to be either a "Person" (internal constraints only perspective) or an "organization" (as may be required when minimum External Constraints are included).

Similarly, a buyer is deemed to be simply a Person unless in the business transaction being modelled external constraints apply which require one to differentiate among the three sub-types of Person, i.e. "individual", "organization" or "public administration".

131) See further 6.3 "Rules Governing the Process Component" as well as Annex F (Informative) - "Business Transaction Model: Process Component".

132) See definition of "organization person" in 3.1.43.

D.5.6 Unambiguous identification of individuals - two basic options

In the preceding sections, some key issues and requirements of both the commercial framework and legal frameworks were identified pertaining to the unambiguous identification of individuals. Before these issues can be resolved, it is necessary to have agreement, i.e., among those modelling a business transaction in the form of scenarios, scenario attributes, and scenario components, i.e. roles and information bundles (and semantic components) and registering the same for re-sue, on the overall approach or context, within which these issues are to be resolved.

The results of the research and analysis undertaken in support of this standard is that there are essentially two options for resolving the issue of unambiguous identification of Persons as "individuals ", namely (1) what can be called "the Swedish option", and (2) what one can call the "Rest-of-the-World (ROW) option".

Option 1: SWEDISH SOLUTION[133)]

1) One single nation-wide schema and registration authority whereby each discrete and unique natural person has a single (official) persona and is assigned a unique identifier at birth to be used for life (and thereafter).

2) This single persona and the unique ID for each natural person are to be used for multiple different purposes and in various contexts, i.e., basically a one-to-many relation.

3) Data elements ensuring unambiguous name representation and identification of individual are prescribed (including biometrics), their values are captured in database(s) and then utilized to produce a single unique "personal identifier" which in turn is used to produce a card/token, i.e., on a one-to-one basis. National standards are developed for an integrated "smart card" for this purpose.[134)]

Option 2: REST-OF-WORLD (ROW)

1) Multiple registration schemes and authorities and associated identification schemes and associated sets of data elements reflect needs of different purposes and use, i.e., contexts.

2) Person has multiple personae and associated IDs, i.e., basically many-to-many. This is so for both "natural" persons and "legal" persons (or organizations).[135)]

From an Open-edi perspective, one has two basic options, the Swedish option or the Rest-of-the-World option.

Both Options are possible. From a standardization perspective either option can be supported through development of standards[136)] Cost-efficient and effective development of standards as well as their widespread adoption and use requires a decision to be taken.

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133) It should be noted that what is called here the "Swedish Solution" is not unique to Sweden. Other countries have (and may have) taken a similar approach. The USA and Canada among others have not. It is just that Sweden has the most transparent and clearly stated rules with respect to unambiguous identification of individuals, i.e., through single IDs. It also has very strong privacy legislation and is the country which pioneered the concept and implementation privacy/data protection.

134) The Swedish National Standards Body, i.e., Svensk Standards (or "SS") has developed several standards to this effect. They are:

— Svensk Standard SS 61 43 30 (1998) Identification Cards - Electronic ID Application;

— Svensk Standard SS 61 43 31 (1998) Identification Cards - Electronic ID Certification; and,

— Svensk Standard SS 61 43 32 (1998) Identification Cards - Electronic ID Card - Swedish Profile.

135) On "persona" and "identification", see further 6.2.2 in the normative part of this standard and Annex E (Informative) "Business Transaction Model: Person Component"

136) Here the legal framework of a jurisdiction plays primary role. For example in the application of ISO/IEC 7501, a jurisdictions as a recognized and registered ISO/IEC 7501 passport issuer may have the rule of permitting an "individual" to hold and have only one valid passport while another jurisdiction, as a recognized and registered ISO/IEC 7501 passport issuer may allow an "individual" to hold more than one valid passport.

With respect to the Swedish option, it is technically feasible to design and operate a registration schema for unique (single) unambiguous identifier for each discrete natural person, i.e., use of biometrics, (fingerprints, iris patterns), genetics, (e.g., DNA), etc. However, building such an infrastructure requires a massive upfront financial investment.

For such a mechanism to be effective requires universal participation either voluntary or through legislation. However, at present, neither of which these is likely to happen in the near future in many countries.[137)] Consequently, a single global schema for unambiguous identification resulting in a single universal identifier for each unique natural person is not a viable scenario.

In the present world, there is not a single universal schema for the provision and registration of a unique single unambiguous identifier for each single unique real world person (natural or legal). Current schemes which have such objectives are bounded by jurisdictions and in their operation. In addition, the use of the resulting identifiers is restricted by law or contractual agreement for a particular purpose. Changes in law and agreements among jurisdictions and levels of jurisdiction are required for any "universal" single schema, i.e., adoption of the Swedish Solution in all countries and worldwide. Also the introduction of single universal identifier for a one-to-one linkage to a unique single real world person could well lead to new types of security problems.

The most viable approach for Open-edi standards development is the "Rest-of-World" option. Even if any country should change its current policy in this area and use/mandate the Swedish option domestically for "natural persons", it would still have to be able to accommodate the "Rest-of-the-World" option for international business transactions.

The conclusion, is that the approach for resolving issues pertaining to the unambiguous identification of individuals (in the Open-edi Standards Framework) should be based on the Rest-of-the-World option (with the Swedish option being considered a peculiar subset of the same).

137) The "Swedish Option" in any country requires applying enabling national legislation harmonized at both the federal and state/provincial levels locally and then internationally.

Annex E
(informative)

Business transaction model: person component

E.1 Introduction

Annex E provides necessary informative and explanatory text for (1) the rules and guidelines and (2) the terms and definitions as well as the figures found in 5.1.3, 5.1.5 and 5.2 pertaining to the Person Component of the Normative part of this standard. The rules and guidelines as stated here in Annex E in bold are the same as those stated in these normative sections as well as for the figures even though both have been re-numbered in this Annex. The major basis for this Annex E is the result of work on requirements for standards in support of e-commerce involving participation of various business sectors, (banking, retail, transport, telecommunications, IT, etc.), public policy makers (various levels of government), consumer associations, experts in security services, lawyers (private and public sector with expertise in common and civil law as well as international trade law), ISO and ISO/IEC JTC1 standardizers, etc. This work identified gaps in an integrated approach incorporating requirements of commercial and legal frameworks and those of existing telecom/IT standards including security services.

The rules and guidelines as well as associated terms and definitions in Annex E incorporate those of relevant existing international standards, referenced in this standard, and introduce other rules in order to bridge existing gaps. The intended result is an approach which links these different perspectives and integrates their requirements.

The primary reason for this Annex E is that no standards exist which focus on the making of business decisions and commitments, nor on the attributes and behaviours of entities and specifically "Person"[138)] as the unique type of entity able to make commitments.

Whether or not a "Person" decides to delegate its decision and commitment making to be executed via a software program, (e.g., use of an "expert system"), "artificial intelligence", "intelligent agents", etc., is immaterial to the fact that the Person who "delegates" authority through these or other IT means, i.e., as technical components, is still held to be responsible, accountable, liable, etc. for the decisions taken and commitments made in a (electronic) business transaction.

This annex is also meant to assist users of this standard who are either not familiar with open-edi standards in general or whose main focus to date has been on functional services view (FSV) standards only.

This is one of three informative Annexes which provide additional required information on one of the three fundamental components of a business transactions, namely “Person”, ”process”, and “data”.

Rule E-1:

A business transaction requires Person, Process and Data[139)]

These three fundamental components are presented graphically in Figure E-1 (as taken from Figure 7 in 6.1.5).

138) In this Annex E, as in the ISO/IEC 15944 standard, the use of "Person" with a capital "P" is used to indicate that it is used as a defined term (See 3.1.45), i.e. as differentiate from the day to day use of the word "person".

139) See further the normative 5.1.5 "Business transaction model: Key Components".

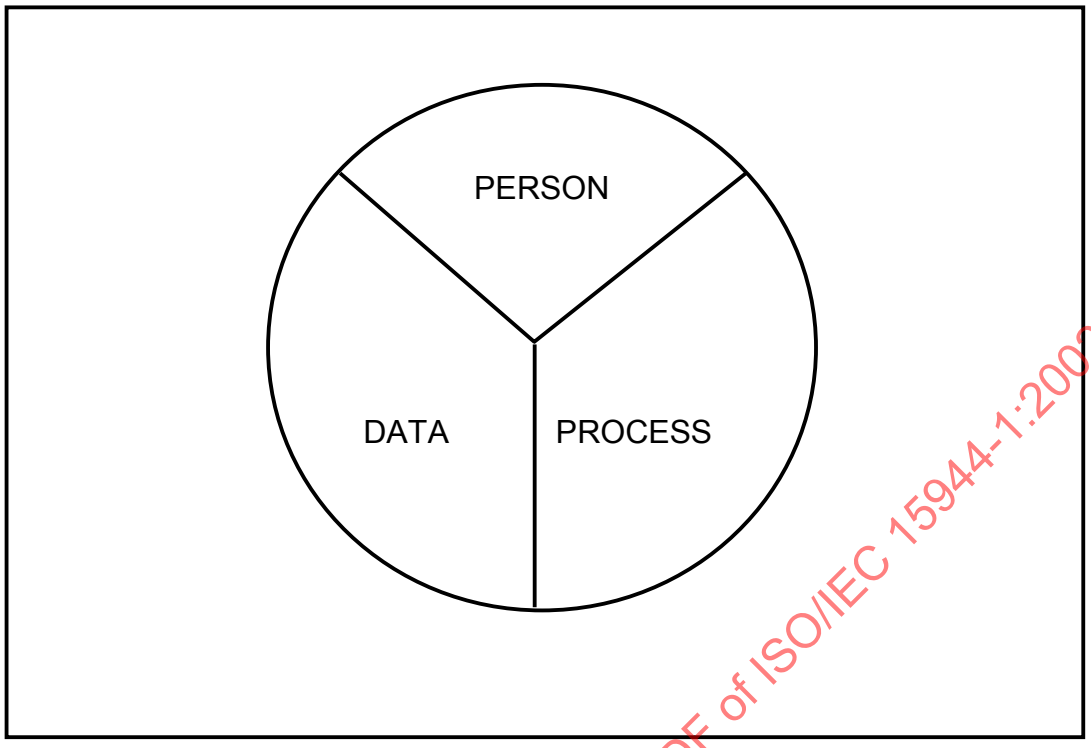

Figure E.1 — Business Transaction Model — Fundamental

A representation of Figure E-1 utilizing the Formal Description Technique (FDT) Unified Modelling Language (UML) as the OeDT here for this rule, yields the following:

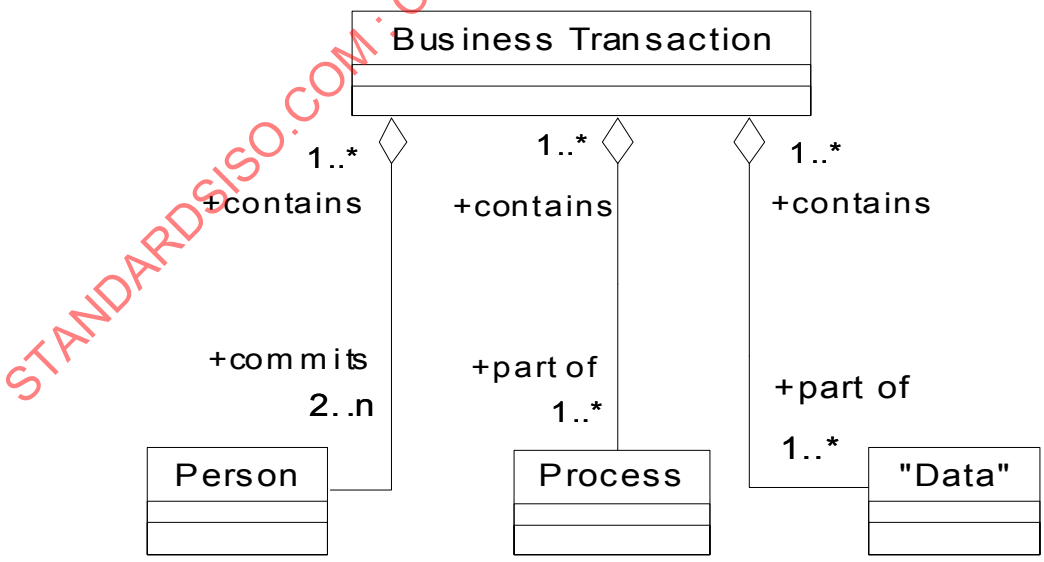

Figure E.2(UML) — UML-based representation of Figure E.1 — Business Transaction Model — Fundamental Components

E.2 Purpose

The purpose of this Annex E is five-fold; namely:

1) to incorporate and support a key aspect of the BOV, namely that of making of business decisions and commitments;

2) to capture the business operational requirements from both commercial and legal perspectives;

3) to capture the unique attributes of "Person" as the entity in business transactions able to make commitments;

4) to ensure that this standard can be used in support of both organizations and individuals engaging in business transactions via Open-edi; and,

5) to ensure that this standard recognizes and can support the role of "regulator" in addition to the roles of "buyer" and "seller" in a business transaction.

The approach taken in this section is to identify and define the distinguishing properties and behaviours of "Person" in the context of a business transaction (and associated categories of "individual", "organization" and "public administration") in the form of clear and precise rules as well as associated terms and definitions. These rules and associated guidelines summarize the results of the analyses, findings, discussions, and feedback for this standardization work which focuses on an integrated approach to the various sources of business requirements.[140)]

These ISO/IEC 15944-1 terms and definitions serve as common bridges/links among policy makers, industry, consumers, IT specialists, etc. They are also to be utilized as common bridges among the legal and commercial frameworks with the information technology framework and standardizers

Accompanying the "rules and guidelines" are brief explanatory notes. A key result or outcome of these rules are key fundamental common definitions and associated terms in support of widespread adoption and use of Open-edi, (e.g., as in e-commerce, e-business, e-government, etc.).

E.3 Person" in a business transaction

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

Rule E-2:

Business transactions require <u>both</u> information exchange and commitment exchange[141)]

In Open-edi business transactions, information systems are deemed to serve as extensions of Persons who identify themselves in a business transaction in a dematerialized manner, i.e., through electronic digitized data elements, instead of through their physical presence or a physical surrogate, (e.g., paper documentation).

A key underlying need of the issue of unambiguous identification is the ability in a <u>dematerialized</u> world to be able to differentiate a Person from all the other entities that one is dealing with, among the participating information and communication technology systems, i.e., through the digitized data being interchanged.[142)]

140) See Figure 3 in 0.2 "Requirements on the Business Operational View aspects of Open-edi".

141) See further the normative section 5.1.3 "Business Transaction: Commitment Exchange Added to Information Exchange".

142) For example, in the dematerialized world of Open-edi, how does one differentiate between, on the one hand, (a) <<jake.knoppers@disney.com>> or <<jake4ever@disney.com>> which are representations of real world person, and (b) on the other <<mickey.mouse@disney.com>> which is not a real world person?

The term "entity" is defined in ISO/IEC 2382 "Information technology - Vocabulary" as:

> ***17.02.05*** ***entity:*** any concrete or abstract thing that exists, did exist, or might exist, including associations *among things.*

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

NOTE Please observe that an entity exists whether data about it are available or not.

> ***17.02.05*** ***entité:*** *tout objet ou association d'objets, concret ou abstrait, existant, ayant existé ou pouvant exister.*

EXEMPLE Personne, événement, idée, processus, etc

NOTE A noter qu'une entité existe que l'on dispose de données à son sujet ou non.

Rule E-3:

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

Guideline E-3G1:

In this standard, 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.

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

Under commonly accepted international law, in any business transaction, whatever the nature and combination of information technologies involved, the participating parties must be "Persons". Persons are the only entities which are and can be held legally responsible and accountable for their actions, including authentication, authorization, commitment, etc.

A generic definition for person is required, i.e., a "Person" as a unique type of entity in a dematerialized world differentiated from all other entities as those currently defined and found in information technology standards such as objects, applications, devices, information systems, processes, sets of software code (or "applets" as "callable objects"), etc.

Various dictionary definitions for "person" exist. (See Oxford/Webster/Larousse). Compounding the issue is that under various laws within a jurisdiction[143)], let alone among jurisdictions, multiple particular definitions of what is or what is not a Person exist. Research and analysis as well as discussions with SC32/WG1 members and others, (e.g., lawyers), resulted in a number of findings. Summarizing and integrating these findings from the perspective and needs of the dematerialized world of electronic business transactions has as objective the ability to differentiate a "Person" from all other types of entities, i.e., as a unique entity type (or object). This resulted in a definition of "Person" and the identification of a set of properties of a "Person".

143) Note: ISO/IEC JTC1/SC32 is sponsoring a NWI (see ISO/IEC JTC1 N5846) which has been accepted (see ISO/IEC JTC1 N6204) to address the issue of jurisdictions as it impacts specification of external constraints on business transactions. This NWI is directed at being able to identify and reference laws and regulations impacting scenarios and scenario components. Development is underway of ISO/IEC 18038 - Information technology - *Identification and Mapping of Various Categories of Jurisdictional Domains"*.

Rule E-4:

A "person" is defined as:

> "***person***[144]: *an entity, i.e. a natural or legal person, recognized by law as having legal rights and duties, able to make commitment(s), assume and fulfil resulting obligation(s), and able of being held accountable for its action(s).*"

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

The three unique properties of "person" already identified include:

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

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

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

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

A body of rules (including laws and regulations) exist which set external constraints on business transactions on the allowable behaviour of Persons and/or proscribe expected behaviours, i.e. in addition to internal constraints which the parties to a business transaction imposed upon themselves[145] These rule sets apply generally and/or locally as well as in relation to the provisioning a particular good or service. These rules, as external constraints apply to persons in the general sense. Many of these rule sets arising from the legal frameworks distinguish between Persons as (1) natural persons as "individuals); and, (2) natural persons or legal persons as "organizations". Some apply to one subtype of Person only[146].

Present day business transactions are in compliance with these external constraints rule sets domestically and internationally. It is assumed that in (electronic) business transaction, "Persons" will also comply with applicable external constraints e.g. laws and regulations updated and made medium neutral as required).

E.4 Personae, identification and person signature

E.4.1 Personae and identification

Unlike (material) objects, Persons represent and identify themselves (as well as other Persons) in a variety of ways, i.e., through different personae[147] depending on the context of the business transaction.

The set of rules and guidelines which follow summarize the key aspects of "personae".

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144) This definition has been drafted to cover both the present material world and the emerging dematerialized world. It is drafted to be independent of any particular information technology, i.e., is medium neutral. A Person as an entity recognized by/in law can be considered to be a "juridical Person" or in French "Personne juridique". A key property of a "stateless" human being is that he/she is not considered to be a Person "recognized by law". Another example in the area of reproductive technologies, it that laws differ in various jurisdictions as to when a human being in formation becomes a "natural person" recognized in law.

145) On "internal constraints" versus "external constraints", see further the normative 6.1.6 "Business Transaction: Classes of Constraints".

146) See further below E. 7 "Person and External Constraints: Individual, Organization and Public Administration".

147) The Latin word for person is "persona" in the singular. In literature, "personae" are the characters (assumed by actors) in a play or novel. In Jungian psychology, a persona is the set of attributes adopted by an individual to fit himself for the social world which he sees as his or the personality an individual presents to the world. {Oxford/Webster}

Rule E-5:

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

Persons (natural or legal) currently do, and will continue, to identify and represent themselves in a variety of ways, i.e., have at least one and usually multiple personae. These various personae and their associated identities represent the intersection of the activity or function the Person is engaged in and the role the person plays in a business transaction.

In different business processes, the same Person may, and often does, represent him/her/itself through similar or different personae. In the physical world and the paper-based world such representations and associated identification are made unambiguous through the context, i.e., a person (natural or legal) is physically present or the paper-based documentation provides sufficient contextual information to bind a Person to the persona utilized.

In the dematerialized world, one cannot readily ascertain whether the entity one is dealing with electronically is a representation of a real world Person or not, (e.g., "jknoppers@disney.com" or "jake4ever@disney.com" versus "mickeymouse@disney.com"). The examples provided all meet Internet IP requirements for routing and addressing, i.e., sent to or receive information from an addressable device. From an IT perspective these are only variations in values in a set of data element(s).

A real world Person (natural or legal) represents her/him/itself in one or more different ways, i.e., personae. An IT system does not "know" whether the values in such (a set of) data elements represent a real world Person or not. The identification and representation of a persona of a person is done through one or more data elements. In short, the context or role of a Person in a business transaction has a major influence on the persona utilized by a Person.

Integrating the above results in the following definition:

> **"*persona:*** *the set of data elements and their values by which a Person wishes to be known and thus identified in a business transaction."*

In addition, to name(s) of a Person, the set of data elements comprising a Personae can include information such as address, (physical or virtual), nicknames, trade names, pseudonyms, numbers, codes, date of birth, etc.[148)]

Figure E-5 (taken Figure 9, 6.2.2) provides a graphical representation of the links of a single same Person (natural or legal) → personae in the different context roles.

148) A common persona for all individuals, i.e., natural persons, is that of the name by which the individual after birth was registered, a civil act (or "baptised", "circumcised", or similar religious ceremony). However, individuals immigrate. A substantial number of citizens in various countries have/use "names", i.e., a persona, which are different from their original/first persona. Examples here include use of transliterated Latin-1 characters, changes for cultural adaptability reasons such as the phonetic rendition of the original name/persona causing problems (apart from pronounce-ability), etc.

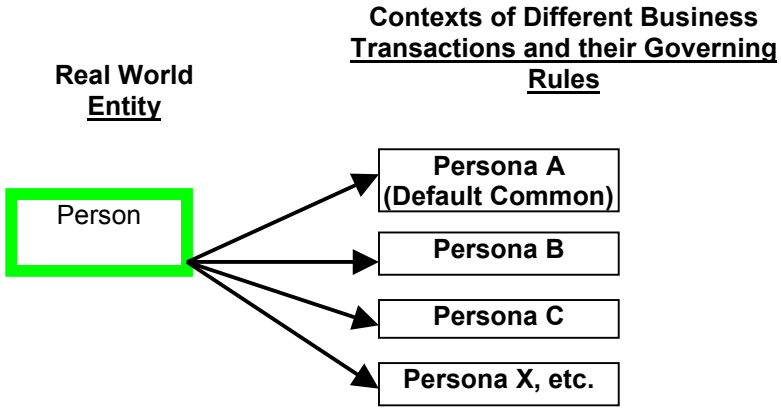

Figure E.3 — Links of a Person to its Persona(e) in the Context of Different Business Transactions and their Governing Rules

A representation of Figure E-3 utilizing the Formal Description Technique (FDT) Unified Modelling Language (UML) as the OeDT here for this rule, yields the following:

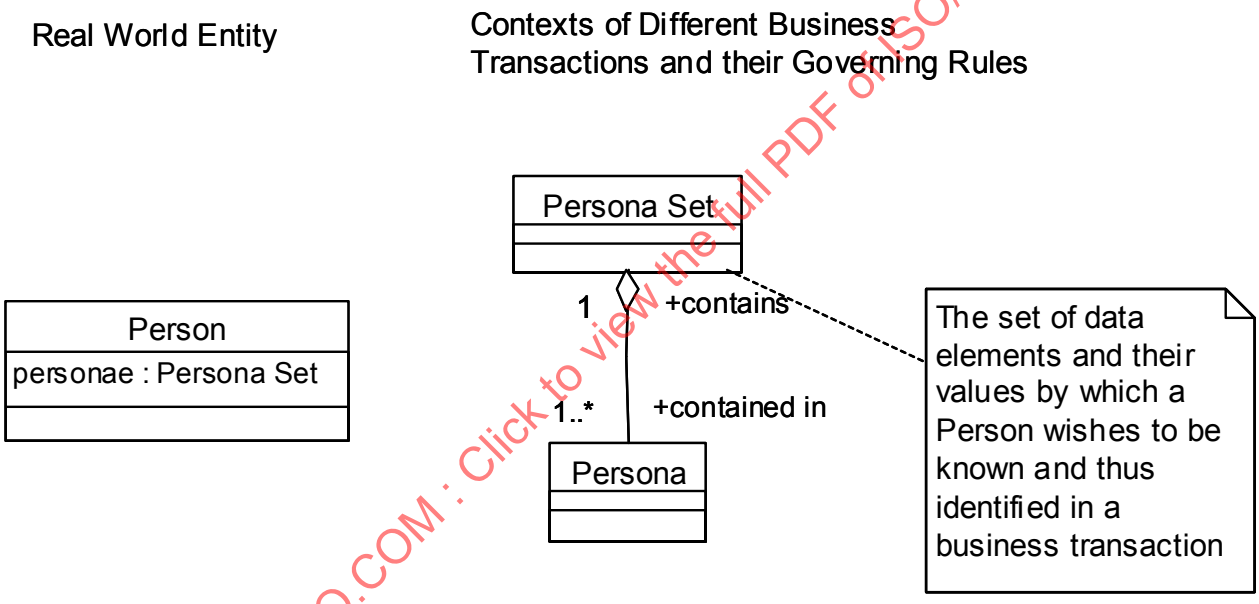

Figure E.4 — (UML)- UML-based representation of "Figure E-3: Links of a Person to its Persona(e) in the Context of Different Business Transactions and their Governing Rules"

Before continuing, it is useful to provide some examples of the same real world Person having multiple different personae and associated different identifiers in the context of various business transactions.

EXAMPLE 1 A bank as a "legal person"/ "organization[149] " with multiple personae and associated identifiers[150]

a) A bank acting in the formal role of a bank as a regulated entity under Canadian, USA, Japan or U.K. banking legislation, and as part of a federation of banks world-wide identifies itself and interacts with other banks through a unique identity (number) issued by SWIFT for interbank fund transfers.

b) The same bank acting in the role of employer as any other employer in a country unambiguously identifies itself to the taxation authorities via a unique number issued by such an authority.

149) For the definition of the term "organization" and related rules and explanatory text, see further below section E.5.8.2

150) See further Annex D (Informative) "Existing Standards for the Unambiguous Identification of Persons in Business Transactions (Organizations and Individuals) and some Common Policy and Implementation Considerations", pp.12-14. For example, organizations using the ISO/IEC 6523 standard will likely have several different identifiers depending on which of the organization schemas (ICDs) they are part of.

c) The same bank acting in the role of a seller of goods and/or services collects applicable taxes on behalf of the government(s) in whose jurisdiction(s) the sale is deemed to have taken place, i.e., Goods and Services Tax (GST) or Value-Added-Tax (VAT) identifies itself through a unique identifier numbers issued by GST/VAT at the national/federal level as well as at the provincial/state/lander/canton level as required. (as well as through equivalent unambiguous identification schemas and associated identifiers for the other jurisdictions).

d) The same bank in the role of a buyer of goods and/or services can unambiguously identify itself in a variety of ways. A common one being the Dun and Bradstreet Number.

e) The same bank in the role or member of a community with restricted membership and specialized functions, (e.g., CIRRUS, EDC, Canadian Payments Association, etc.), unambiguously identifies itself through a unique identifier issued by/associated with each such member of this community.

f) The same bank in the role of an incorporated entity can unambiguously identify itself through its legal name or operating name. These names of an organization (either or both the legal or operating name) can be in more than one language, especially where the jurisdiction has more than one official language.

g) The same bank in the role of market differentiation or positioning can unambiguously identify itself in its present (or prospective) persona through a "trademark".

h) The same bank in the role of a registration authority in federation of debit/credit card issuer both identifies itself and person (natural or legal) to which the card is issued. {See ISO/IEC 7812, *Identification cards — Identification of issuers*, as explained in Annex D}.

i) The same bank in E-commerce can unambiguously identify itself through an Internet domain name or Uniform Resource Locator (URL). [Note: The Internet IP Addressing schema is registered through ISO/IEC 6523 by IANA and has the International Control Designator (ICD) =" 0090"]

EXAMPLE 2 A "natural person"/ "individual[151)] " with multiple personae and associated identifiers

a) A natural person/individual has perhaps the greatest variation in personae. First of all, there are variations in combinations of surnames, given names, initials, honorifics, titles, etc., which can form the personae by which individuals can and do represent and thus identify themselves in a wide variety of contexts. Any singly and unique individual only has to look at all the variations in personae found in the different tokens, (e.g., credit cards, business card, driver's license, professional membership card, Medicare card, passport, public transport pass, etc.), each individual currently uses in daily business transactions.

b) The same individual in the role of a buyer can unambiguously identify him/herself as a personae through one or more data elements or sets of data elements which serve as "identifiers": (1) each of which is unique and unambiguous within the schema of the registration authority who issues them; (2) others which are not considered unique or unambiguous.

c) The same individual in the role of buyer is often presented options as to method of payment, i.e., variety of (sub)-processes. Some of these require unambiguous identification, others do not, (e.g., the equivalent of a cash-based payment).

d) Within a particular method of payment such as the use of a credit or debit card, the same individual as buyer can, in each instance of purchase, decide to use one of several unambiguous identities, i.e., specific combinations of personae and identifiers as found on one of several credit or debit cards accepted by the seller.

Rule E-6:

The level of unambiguity, i.e., certainty/reliability, of a persona and resulting identification as the Person Identity[152)] used by a Person, shall be appropriate to the goal of the business transaction.

Most often this is a question of degree of granularity and level of specificity[153)]

151) For the definition of the term "individual" and related rules and explanatory text, see further below section E.5.8.1.

152) See the Normative 6.2.3 "Person - Identity and Authentication" as well as below E.4 "Person - Identity and Authentication".

153) On "granularity" see further Annex G (Informative) G.5.4 "Granularity".

In different business transactions and associated processes, the same real world Person may represent itself through the same or through different persona. The persona itself can meet unambiguous identification requirements for a Person in a business transaction and/or other data elements may be required, i.e., an identifier. The same personae of a Person used in various business transactions may well have the same identifier or different identifiers.

Rule E-7:

The persona used shall be associated with a Person Identity that can be authenticated to the extent required for the business transaction.

Each business transaction will consider the persona used, on its own merits depending on the set of rules (internal constraints only and/or including external constraints as well) governing a business transaction. For example, a peculiar business transaction modelled through re-useable scenario attributes and scenario components may (1) require the use of a specific, i.e. predefined, persona (e.g. a passport); while, (2) others may allow for several different existing persona (and associated identifiers) to be used as long as a set of other specified criteria are met (e.g. anyone of the following X, Y or Z credit cards are acceptable irrespective of the persona used by the credit card holder).

Rule E-8:

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

Depending on the goals of the business transaction, a Person can and does use the same persona in different roles and contexts. For example, the data elements comprising the name of a person can be the same on several credit cards according to the wishes of the person to whom the credit card (or similar token) pertains, or they can differ.

As a default, the internal constraints governing a business transaction will specify the acceptable personae for the Persons as parties to that business transaction. A common default here is the acceptance of any "persona" as stated on the credit/debit card deemed to be acceptable as a method of payment in a business transaction. A common special case, as an example of an external constraint, is the requirement to produce the "persona" found in the passport of an individual when registering for lodging at a hotel. Equally important is the fact that at times "sellers" in a business transaction, i.e., those providing a good or service, prescribe the persona a person must use. Prescribe means that one has no choice in personae to be utilized and must follow clear and precise criteria for the representation of a specific persona in a particular category of business transactions. Examples here include:

1) Driver's license or Medicare cards where an individual must use their "baptismal name" (or Latin-1 alphabet equivalent).

2) Organizations having to use their complete formally incorporated name, (e.g., “Information Management Services Inc." instead of "INFOMAN" or "INFOMAN Inc." or “International Business Machines Inc.” instead of "IBM").

Guidelines E-8G1:

A party to a transaction has the option of prescribing the persona (and associated identifier) 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 here is known as a Registration Schema and the entity registering the persona known as a Registration Authority (RA)[154] Usually a Registration Authority assigns an identifier unique within that identification schema to each discrete Person/persona. At times, a RA utilizes the Person ID of another schema.

154) On "Registration Schema" and "Registration Authority", see the normative 6.2.3 "Person - Identity and Authentication" as well as below E.4 "Person -Identity and Authentication".

The public sector in relation to the services provided often prescribes, through law or pursuant regulation(s), the data elements comprising a Person's persona and rules governing their values. For example, some government programs prescribe the use of a natural person's name as found on their birth certificate or the use of a legal person's name by which the entity was officially incorporated and registered[155)].

Guideline E-8G2:

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

A "**name**" is "a designation of an object by a linguistic expression".

The name utilized by a Person forms a key part of the personae. Persons (natural or legal) can and do at times change their names. They can also use one persona in one business transaction and another persona in another business transaction. In addition, formal processes for change of name of a single, real world Person and registration of such changes exist in most jurisdictions.

With respect to natural persons, i.e., as individuals, a change in name can be considered being equal to a new persona (especially where such a name change is recognized/prescribed in the applicable jurisdiction). With respect to a name change of a legal person, this may be (1) for the same legal person; or, (2) for the same Person, as a "changed" or "different" legal, i.e., artificial person (e.g. the incorporation number/identifier can remain constant while even though the name of the incorporated entity may change)

Guideline E-8G3:

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.).

Some jurisdictions have pools of family names which are common to a significant number of individuals in that jurisdiction so that even adding the Christian name or "pre-name" to the family name does not result in an "unique and unambiguous" name for that individual in that jurisdiction. Other jurisdictions restrict the family names available or variations in family names (e.g. China). This also results in numerous distinct and unique individuals having the same "names".

Guideline E-8G4:

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.).

Even if a natural person's name is unique, a natural person can identify him/herself through a variety of possible combinations of data elements comprising such a name, (e.g., combinations of one or more given names, surnames, applicable title(s)/qualification(s), nicknames, etc.), by which that person wishes to be known, i.e., identify him/herself. In addition, there are pseudonyms, noms de plume, etc., which persons may use to identify themselves. The latter are quite common in Internet name/addresses where they are commonly known as "nyms".

Further from a cultural adaptability perspective, a Person generally (or as "individual", organization" and/or "public administration" may use one persona for business transactions executed in the language of the jurisdiction of which they are part (e.g., an jurisdiction where the alphabet in use is of a non-Latin-1 nature such as Arabic, Chinese, Hebrew, Japanese, Korean, Thai, Russian, etc.) and another "equivalent" persona in (international) business transactions utilizing an equivalent Latin-1 alphabet based representation.[156)]

155) Where a jurisdiction has more than one official language, it is likely that the name by which an organization was officially incorporated may have more than one linguistically different but equivalent "official names". This applies particularly, to public sector institutions in jurisdictions having more than one official language.

156) A common example here are business cards which, on one side, have printed the persona in the language and character set of the "home" jurisdiction of the Person and, on the other, provide an equivalent Persona based on the Latin-1 alphabet.

Guideline E-8G5:

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.

Names of legal persons are not unique, i.e., possibly within a single jurisdiction but not from a global electronic business transaction perspective. A jurisdiction may have more than one official language. At times legal persons will have more than one "official" name (and quite often are required to have multiple equivalent official names in the various languages of a jurisdiction. This is especially true for "official" names for public sector organizations in jurisdictions having more than one official language.

Guideline E-8G6:

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

That is:

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

2) (Names of legal persons are not unique. It is possible that within a single jurisdiction the name of a legal person as recognized and registered in that jurisdiction is unique but certainly not from a global electronic business transaction perspective which spans multiple jurisdictions.

Guideline E-8G7:

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

Unambiguous identification of a Person and the personae utilized by that person pertaining to name and address information consist of various combinations of attributes, i.e., data elements of that Person pertaining to name and address information. The number of data elements for naming Persons (natural or legal) is finite and the rules governing their interworking are known (though often not explicitly stated as is required for electronic commerce). Once a particular combination of name/address data elements and their values associated with a persona are captured, those registering such data then assign an identifier which is both unambiguous and unique within that registration schema (or security domain).

It is assumed that different applications may well require various combinations of Person name data elements drawn from the same generic template or catalogue.

Guideline E-8G8:

Associated with each persona of the same Person can be a single identifier, or several personae can utilize 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).

An identifier is a unique value within an identification schema[157)] In the day-to-day real world this is already happening. Figure E-5 (taken from Figure 10, 6.2.2) illustrates Person to persona(e) to identifier links.[158)]

157) See further the standard definitions for « identification » and « identifier(business transaction) » in normative 3.1 as well as the normative 6.1.4 « Business Transaction : Unambiguous Identification of Entities ».

158) Different fonts and representations are used for "identifier" to recognize the wide variety in forms and information technologies utilized to capture unique identifiers pertaining to a specific persona of a Person.

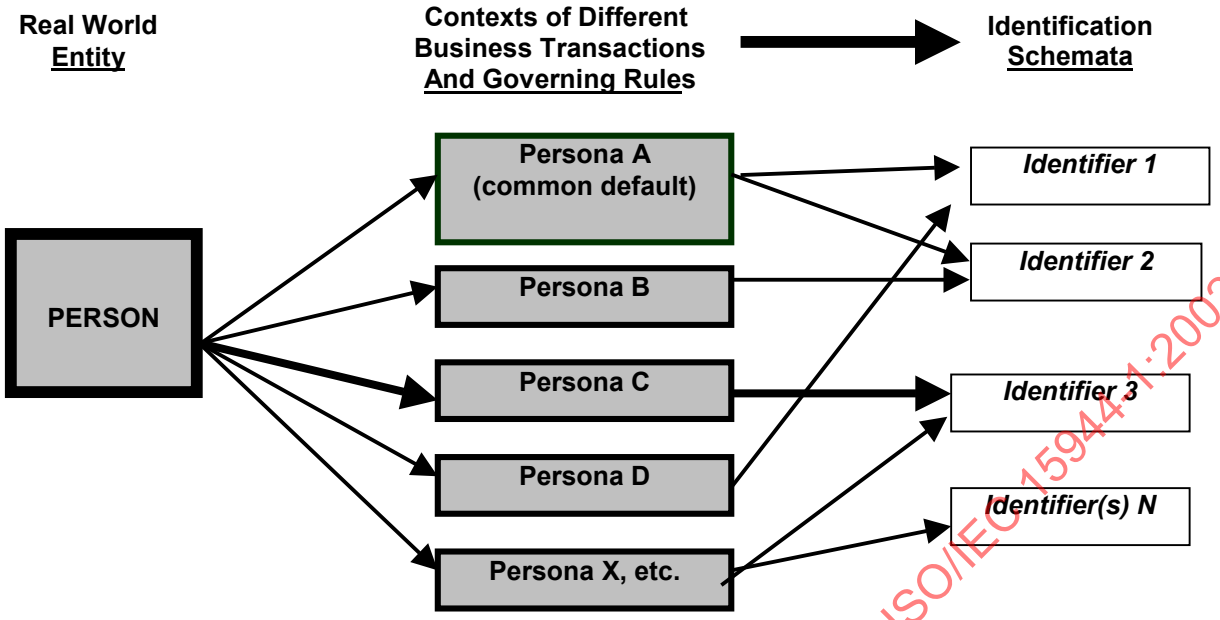

Figure E.5 — Illustration of Links of a Person to Persona(e) to Identifier(s) issued through Identification Schemata applicable to the contexts of different business transactions

A representation of Figure E-5 utilizing the Formal Description Technique (FDT) Unified Modelling Language (UML) as the OeDT here for this rule, yields the following:

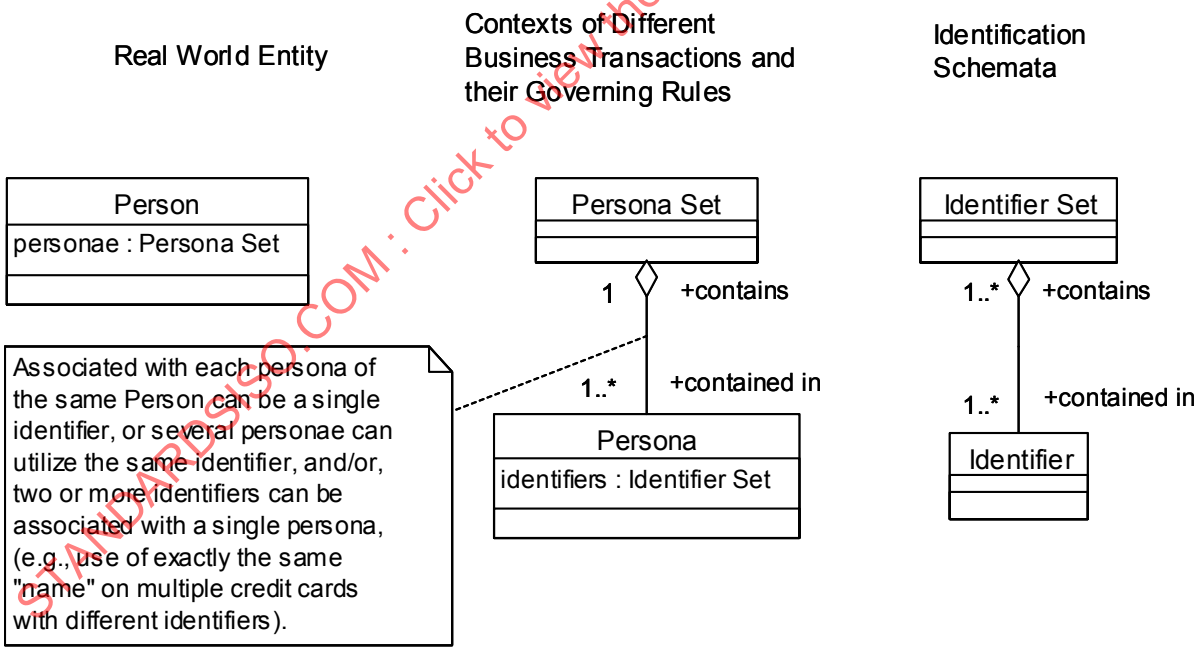

Figure E.6 — UML-based representation of "Figure E-5: Illustration of Links of a Person to Persona(e) to Identifier(s) issued through Identification Schemata applicable to the contexts of different business transactions

E.4.2 Person signature

Rule E-9:

In present day business transactions, a Person can and does use different signatures.

For example, a natural person, i.e. as an "individual" or an "organization Person"[159] can use:

1) a signature comprised of all/full set of given names and surnames;

2) a signature consisting of a single given name and surname;

3) a signature consisting of one or more initials and a surname; and/or,

4) a signature of the nature of an "initial", i.e., to initialize[160].

Rule E-10:

An organization Person[161] as an employee or officer acting on behalf an organization "signs", i.e., links itself, to a business transaction on behalf of that organization, in a variety of ways.

EXAMPLE An "organization Person" can and does use different signatures in different contexts and for different purposes depending on the roles and functions he/she is responsible for within the organization.

Rule E-11:

A Person controls the use of its signature.

It is assumed that a signature (a) belongs to a Person, (and not a "technical component"); (b) is created/generated by a Person; and, (c) depending on the context of the business transaction is used by a Person either for the purposes of identification, authentication, authorization and/or witnessing.

Rule E-12:

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.

Current definitions of digital signature or "electronic signature" in the context of security services focus on ensuring the integrity of a set of digital data. For example, a "electronic signature" is an asymmetric cryptographic algorithm which binds a set of digitized data. The purpose of which is basically two fold, namely (a) to ensure that no changes whatsoever occur in the contents of the set of information exchanged between original sender and ultimate recipient, i.e. "data integrity"; and (2) to ensure that such data is available to, i.e. can be read by, only the intended recipient(s), i.e. "confidentiality". However, here the senders and recipient(s) as "end users are technical components, i.e. IT systems, computers, applications, etc. and not "Persons". {See further normative 6.1.3 and especially Figure 4, *"Illustration of "technical Components" as End Users of Information Exchange(s) in IT Standards"*}.

The primary requirement for both the legal and commercial frameworks as well as that for building trust is to be able to bind a Person to a signature. Quite apart from any technical solution, (e.g., in the form of electronic, digitized and/or digital signatures), the first step here is reaching agreement on a common (non-technical) concept/term and associated definition which binds a Person to a signature, i.e., "Person signature".

There are several advantages to the use of the concept/term "Person signature", including:

1) this is a clear and precise way of binding Person ↔ signature, i.e., as a special and particular type of signature, i.e., vis-à-vis the existing general/generic IT definition of an "electronic signature" as an "asymmetric encryption algorithm";

2) it is media neutral and transparent vis-à-vis both digital and the non-digital world;

159) See further below E.7 Person and External Constraints: "Individual", "Organization", and "Public Administration".

160) This is quite common where a natural person as "individual" or "organization person" is requested to initialize each page in a contract or similar legal document.

161) For the standard definition for "organization Person" see clause 3.1.43 as well as the normative 6.2.7 "person and External Constraints: Individual, Organization and Public Administration. See also below section E.7.

3) it is independent of the manner, i.e., the HOW, in which a signature is recorded, (e.g., written, stamped, electronic, use of encryption, etc.); and,

4) it is a new term, i.e., coined, unambiguous and thus avoids the existing confusion in the area of signatures and (electronic) business transaction.

Rule E-13:

A signature which is created by and/or pertains to a Person is deemed to be a "Person signature" and is defined as follows:

> *"**Person signature:** a signature, i.e., a name representation, distinguishing mark or usual mark, which is created by and pertains to a Person".*

Guidelines E-13G1:

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

NOTE 1 The purpose of this definition is to focus on and address the "WHATs" of a signature of a person, irrespective of the "HOWs", i.e., methods, means, information technology tools, etc.

NOTE 2 This definition assumes that a standard definition for signature exists as a "what" and one which is media neutral and IT independent.

NOTE 3 A Person signature can occur with respect to any set of activities or a Person signature can occur with respect to any set of activities or processes 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 outside the scope of this standard.

It is assumed that the parties to a business transaction will, in addition to any internal constraints which apply, comply with any external constraints governing the use and formation of a Person signature.

Rule E-14:

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

It is important that in the modelling of a business transaction as a scenario, scenario attributes, and/or scenario components, to specify that when a Person signature is required of any party to a business transaction the purpose for which such a signature is utilized and deemed to be valid.

The above Rules and Guidelines, support the requirement of ensuring that the end entities in any business transaction including those which are electronic business transaction-based, are "Persons", i.e., those entities which are able to make the required commitments, are held accountable/responsible for, etc. A variety of combinations of linkages currently exist among personae, identifications and signatures for the same unique real world Person. This is illustrated in Figure E-7 (as taken from Figure 11 in 6.2.2).

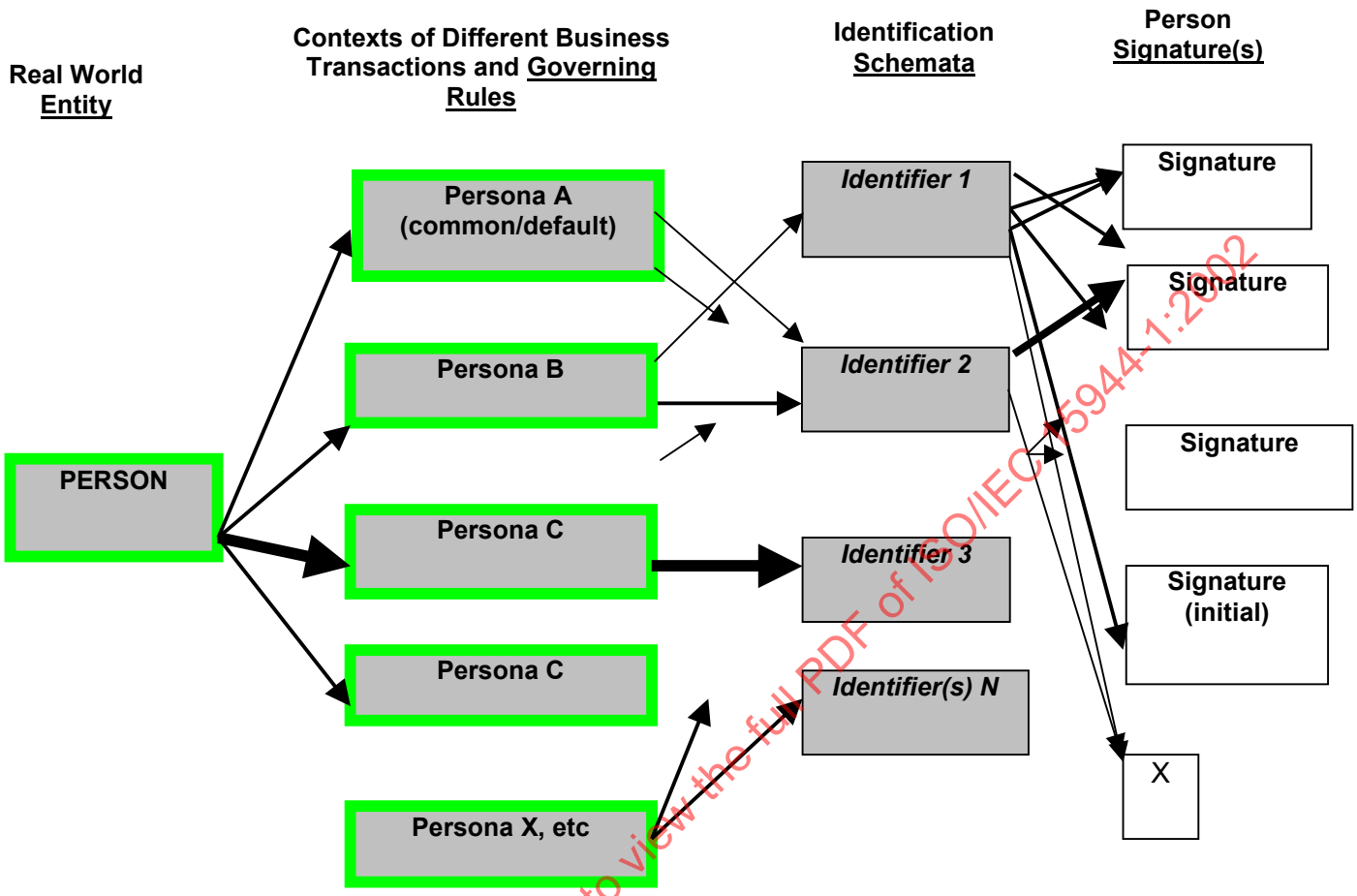

Figure E.7 — Illustration of Relationships of Links of a Person to (its) Persona(e) to Identification Schemata and resulting Identifiers to associated Person Signatures - in the Context of Different Business Transactions and Governing Rules

A representation of Figure E-7 utilizing the Formal Description Technique (FDT) Unified Modelling Language (UML) as the OeDT here for this rule, yields the following:

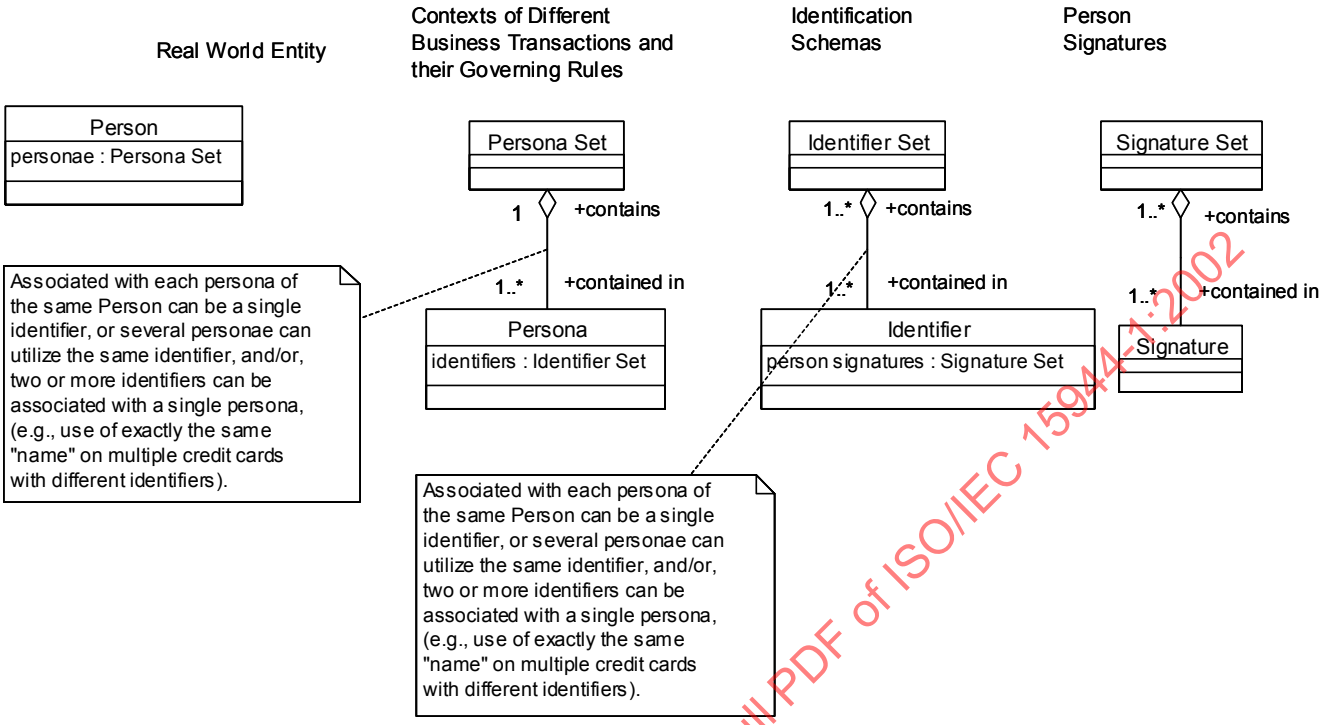

Figure E.8 (UML) — UML-based representation of "Figure E-7: Illustration of Relationships of Links of a Person to (its) Persona(e) to Identification Schemata and resulting Identifiers to associated Person Signatures — in the Context of Different Business Transactions and Governing Rules

E.5 Person - identification and authentication

As determined in Section E.3 above, a Person has one or more persona (and an associated identifier(s) with each). Which persona and associated identifier is to be used depends on the contexts on the contexts of different business transactions and governing rules. However, with respect to the role of a Person in a specific instance of a particular business transaction, a Person will use a single and unique combination of its persona and the associated identifier, i.e., as its "Person Identity" in an instantiated real world business transaction.

Person identity is defined as:

> ***"Person Identity:*** *the combination of persona information and identifier used by a Person in a business transaction".*

Rule E-15:

The Person Identity, i.e. the Person 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.

It is assumed that for any business transaction modelled and specified utilizing this ISO/IEC 15944-1 standard and for which the applicable re-useable scenario(s), scenario attributes, and/or scenario components are registered using ISO/IEC 15944-2 will explicitly state the nature and contents of the Person Identity(ies) deemed to be acceptable in such business transactions.

It may well be that for a particular business transaction, such as the provision of a medical service, a particular and pre-specified and qualified Person Identity must be used by the Person (as "buyer") who is the recipient of such a medical service. And in another business transaction, one or more Person Identities may be utilized, i.e. as long as they meet certain specified criteria (e.g. any valid credit or debit card).

Figure E-9 (taken from Figure 12 in 6.2.3) illustrates the range of links between Person and Person Identity.

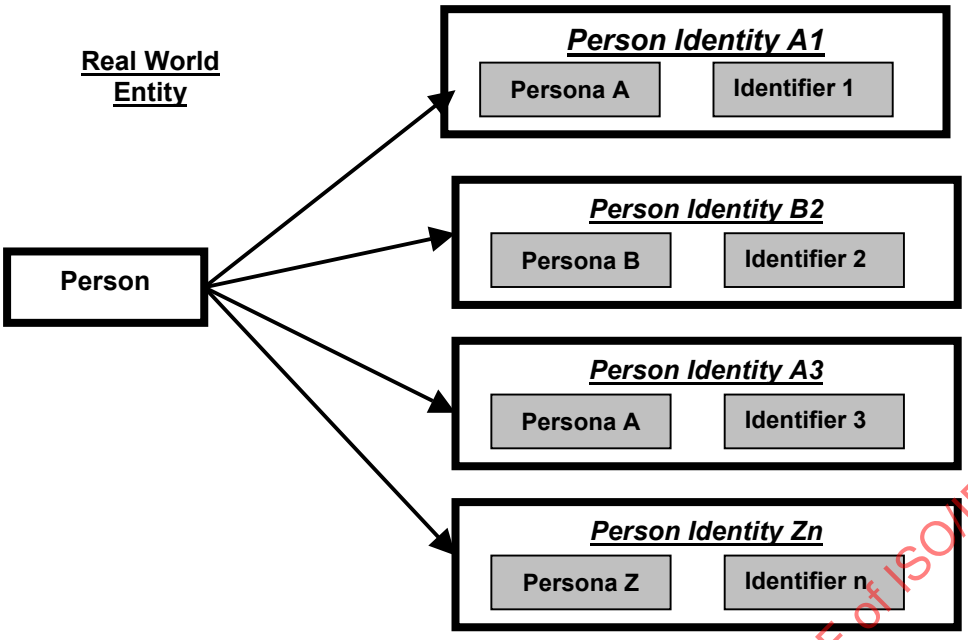

Figure E.9 — Illustration of Range of Links between Person and Person Identity(ies)

A representation of Figure E-9 utilizing the Formal Description Technique (FDT) Unified Modelling Language (UML) as the OeDT here for this rule, yields the following:

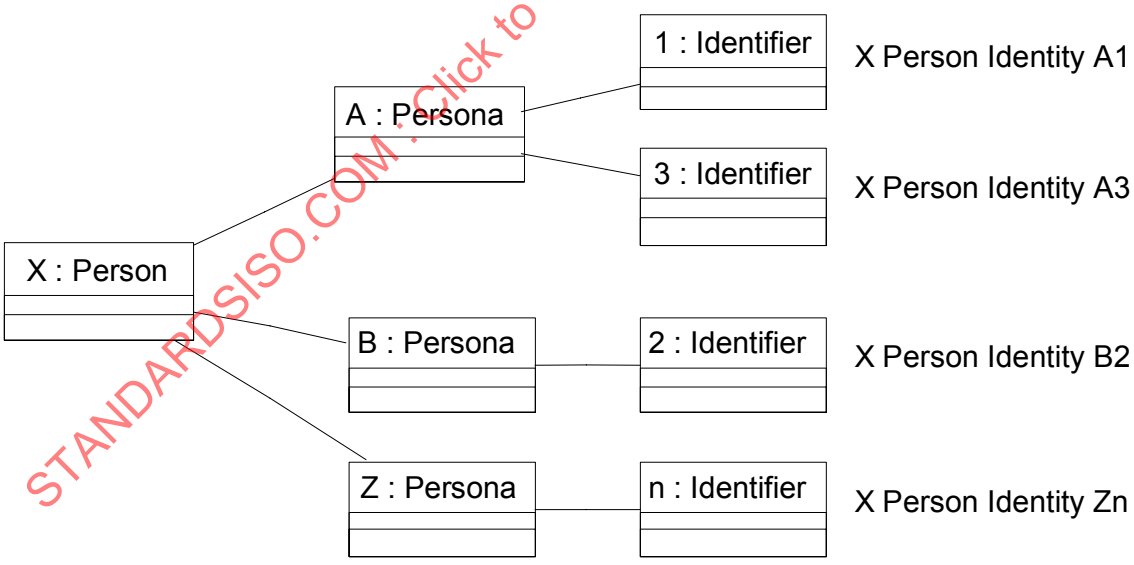

Figure E.10 — UML-based representation of "Figure E-9: ": Illustration of Range of Links between Person and Person Identity(ies)

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/utilize a pre-specified Person Identity (e.g. a Blue Cross card, a national health insurance card, a passport, a drivers license, 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."[162)]

"Recognized Person Identity" is defined as:

> "***Recognized Person Identity:*** *the identity of a Person, i.e., as a Person Identity, established to the extent necessary for a specific purpose in a business transaction".*

Rule E-16:

In a business transaction, a Recognized Person Identity is established by either:

i) mutual recognition and acceptance; or

ii) by referring to an identifier in a Registration Schema of a Registration Authority.

This rule is illustrated in Figure E-11 (taken from Figure 13 in Section 5.2.3)

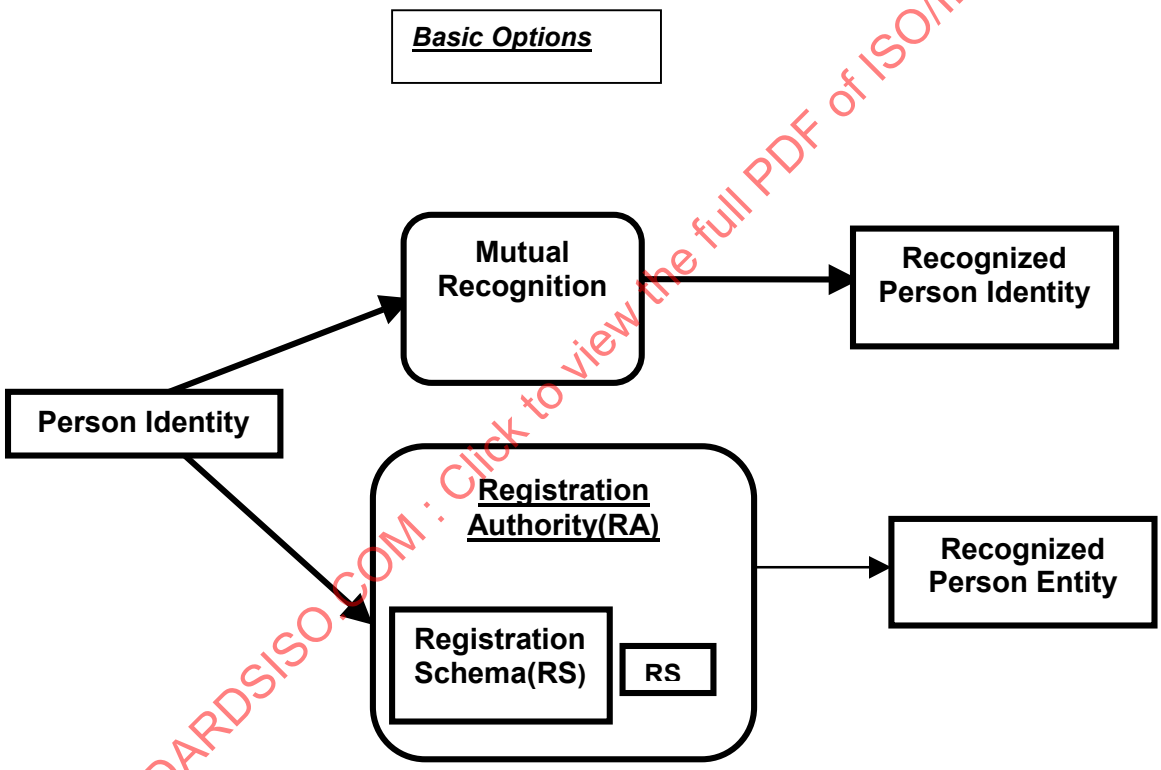

Figure E.11 — Illustration of Two Basic Options for Establishment of a Recognized Person Identity based on a Person Identity for Use in ausiness Transaction

A representation of Figure E-11 utilizing the Formal Description Technique (FDT) Unified Modeling Language (UML) as the OeDT here yields the following figure:

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162) 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 6325, ISO/IEC 7501 or ISO/IEC 7812 - see further Annex D), or the set of data elements required may be more extensive but must still be finite and prescribed. These and similar specifications are outside the scope of this standard and are expected to be registered as "re-useable" information bundles in accordance with ISO/IEC 15944-2.

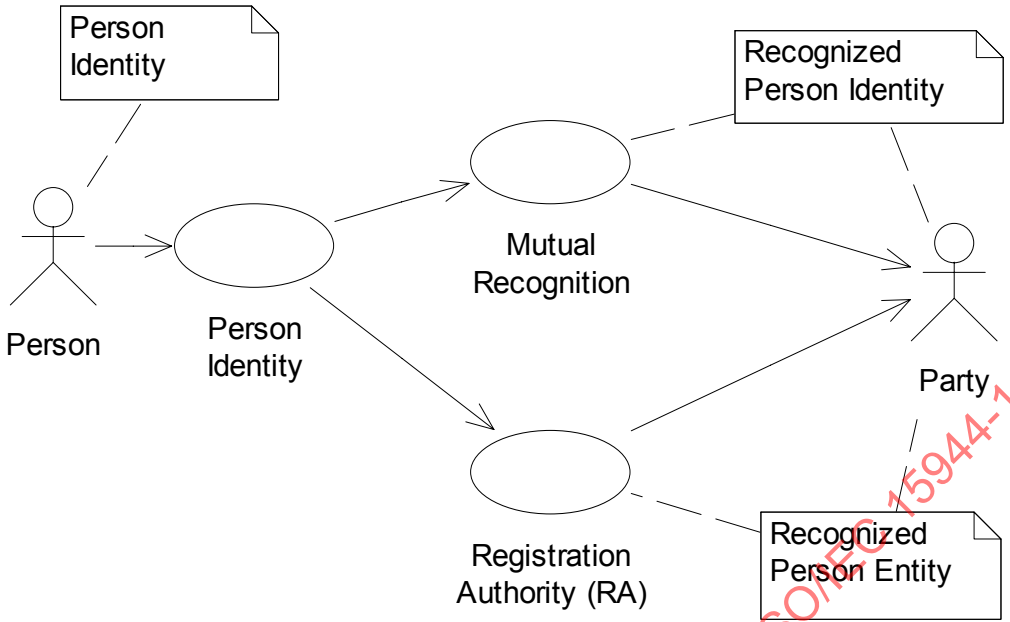

Figure E.12 (UML) — UML-based representation of Figure 11: Illustration of Two Basic Options for the Establishment of a Recognized Person Identity based on a Person Identity for Use in a Business Transaction

When modeling a business transaction utilizing this standard, it is important to specify which of these two options apply.

Guideline E-16G1:

A Recognized Person Identity based on a Registration Schema of Registration Authority has the added attribute of being re-useable and thus is the preferred approach in support of Open-edi[163]**.**

Registration Schema is defined as:

> "***Registration Schema:*** *the formal definition of both the data fields contained in the specification of a persona of a Person and the allowable contents of those fields, including the rules for the assignment of identifiers. (This may also be referred to as a profile of a persona)".*

In this standard, Registration Authority is defined as:

> *"**Registration Authority:** a Person responsible for the maintenance of one or more Registration Schemas including the assignment of a unique identifier for each recognized entity in a Registration Schema".*

Rule E-17:

A Registration Authority for Persons shall have explicitly stated rules for transforming a Person Identity into a Recognized Person Identity to meet a stated business requirement.

When registering such business requirements as part of a business transaction modeled using this standard, one should state which of these two options is being modeled (and registered). In addition, where it is possible that more than one Registration Authority's "Person Identity" is acceptable, the list of acceptable Registration Authorities should be specified. Examples here include (a) a Person Identity issued according in compliance with

163) In this context it is useful to quote rule 5 in the normative 6.1.4 "Business Transaction: Unambiguous Identification of Entities", it states "**Rule 4: existing standards shall be used to the greatest degree possible in the building and use of scenarios, scenario attributes and scenario components".** In Annex D are presented several widely used Registration Schemas with Registration Authorities based on international standards found.

ISO/IEC 7812[164] (or a subset of the same such as a "MasterCard", a "VISA card", an "American Express Card", a "Eurocard", a "DinersClub card", etc.) (b) a Person Identity issued in accordance with other IS/IEC standards such as ISO/IEC 6523 and ISO/IEC 7501[165]; and/or any other international standard proving a similar business operational requirement. The Guideline which follows captures this requirement.

Guideline E-17G1

The rules governing a business transaction may either require the use of a specified Recognized Person Identity 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 as:

> *"**Person Authentication**: the provision of the assurance of a Recognized Person Identity (sufficient for the purpose of the business transaction) by corroboration."*

For Person Authentication to be successful, the following actions must have already taken place:

— a Person Identity must have been established; and,

— the Person Identity must be recognized, i.e., a Recognized Person Identity must exist.

Rule E-18:

In a business transaction, Person Authentication is established by either:

i) mutual recognition and acceptance; and,

ii) by referring to predefined registration schema and process.

In modeling a business transaction using this standard, it is necessary to state explicitly which of these two basic options is used/acceptable when registering a scenario, scenario attribute, and/or scenario component. If Option "ii)" is utlized the registration schema (and process) deemed acceptable must be specified.

E.6 Person and roles: buyer and seller

Rule E-19:

The two basic roles of persons involved in any business transaction are those of "buyer" and "seller".

They are defined as:

> *"**buyer:** a Person who aims to get possession of a good or service through providing an acceptable equivalent value, usually in money, to the Person providing such a good, service and/or right."*
>
> *"**seller:** a Person who aims to hand over voluntarily or in response to a demand or request, a good or service to another Person and in return receives an acceptable equivalent value, usually in money, for the good, r service, and /or right provided."*

164) See further Annex D (Informative) Existing Standards for the Unambiguous Identification of persons in Business Transactions (Organizations and Individuals) and Some Common Policy and Implementation Considerations".

165) Idem.

Rule E-20:

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.

Explanatory Notes to Rules E-19 and E-20:

NOTE 1 The use of the term "Person" in these definitions means that "seller" and "buyer" inherit all the properties of a "Person".

NOTE 2 Synonyms for "buyer" include "client", "purchaser", "shopper" (and "emptor" as in "caveat emptor" = buyer beware).

NOTE 3 Synonyms for "seller" include "dealer", "merchant", "(service) provider".

NOTE 4 Use of terms such as "**consumer**" and "**vendor**" is reserved as defined terms to be used in connection with Consumer protection requirements, as set of common horizontal external constraints. {See further below E.9}

NOTE 5 The phrase "providing an equivalent value, usually money" covers the following:

NOTE 5.1 It is up to the buyer and seller to decide and mutually agree upon "an acceptable equivalent value".

EXAMPLE The seller can set the monetary value at $0.00 for the good or service provided. The seller may provide this good or service for free in terms of monetary value but the seller can still retain other rights with respect to the good or service which the buyer upon receipt of the good or service is obliged to honour. The common example here is the seller retaining copyright or other intellectual property rights. The medical, education and social services sector represent areas where the contents of a business transaction do have value, need to be protected, etc., but such values are of a non-monetary nature.

NOTE 5.2 The buyer and seller to decide and mutually agree upon "an acceptable equivalent value".

NOTE 5.3 In the public sector, many goods or services are provided for "free" to buyers, increasingly known as "clients".

A primary reason the monetary value for delivery of such goods or services to Persons generally or individuals specifically, is that the seller as a public administration has already been "pre-paid" with respect to an "acceptable equivalent value" through the collection and receipt of the same in the form of taxes.

NOTE 5.4 The buyer and seller may barter, i.e., not all business transactions need to involve money.

NOTE 6 With respect to the seller, the phrase "to get possession of" and "to hand over" may or may not involve full transfer of ownership rights. For example, the buyer, may purchase only a (a) "right to re-sell, i.e., the seller retains the intellectual property rights on the good or service bought by the buyer; or (b) the business transaction may be a "sale" of a license to use with the seller retaining the intellectual property rights, (e.g., patents, copyrights, trademarks, or industrial designs).

NOTE 7 For Open-edi based implementations where the exchanges of equivalent values are primarily of a non-monetary nature, (e.g., as in (electronic) administration, health, education, social services, etc.), synonyms for seller and buyer are often "provider" and "recipient" or "client".

NOTE 8 It is assumed that (1) either the "buyer" or the "seller" can use an "agent"; (2) that both can agree on involving a "third party"; and/or external constraints may require the involvement of a "third party" in a pre-specified role.

Rule E-21:

Rules and practices of "buyers" and "sellers" governing business transactions, including those via Open-edi apply, either to Persons generally or distinguish between "individuals", "organizations" and/or "public administrations"[166]**.**

It is important to ascertain in a business transaction whether the rules and practices of "buyers" and "sellers" which govern a business transaction (1) apply to Persons generally, i.e. as internal constraints with no external constraints applicable; or, (2) distinguish (or need to distinguish) between "individuals" and "organizations", (and/or "public administration") as a results of the application of minimum, common external constraints. .

Where one needs to distinguish in a business transaction whether one (or more) of the parties, i.e. Persons, to the business transaction is an "individual" and "organization", it is likely that privacy/data protection rules need to be applied to "information pertaining to an identifiable individual" associated with a business transaction.

166) See further below E-8 " Persons and External Constraints: "Individual", Organization", and "Public Administration"."

Rule E-22:

It is assumed that unless bound by external constraints "buyers" and "sellers" as persons are free to undertake any business transaction involving any good or service they mutually agree to.

The basis of Business Transaction Model is that it has been derived to provide a simple view of commerce for which there are no constraints on the actions of buyers and sellers, i.e. the only constraints are internal constraints which are those which the parties to the transaction impose on themselves External constraints of the Model recognizes that there often are external constraints on "buyers" and "sellers" imposed by "regulators" and implemented through "public administrations". {See further below E.7 and E.8.5}.

The Business Transaction Model is based on the following assumptions:

a) A natural person in the role of a "buyer" is deemed to be an "individual".

b) A natural person in the role of a "seller" is deemed to be an "organization".

NOTE 1 This is consistent with the international standard definition of "organization". (ISO/IEC 6523)

NOTE 2 This is consistent with a self-employed and/or unincorporated natural person offering for sale a good or service (and already being considered to be an "organization" for sales tax/value-added tax purposes).

E.7 Person and delegation of commitment to "agent" and/or "third parties"

E.7.1 Introduction

In many business transactions, several other parties are involved other than those in the roles of buyer and seller. Two categories of parties most commonly involved are those known as "agents" and those known as "third parties". They are separate and represent different roles. In addition, this issue is complicated by the use of various terms/words being used as synonyms, (e.g., intermediary, service provider, service bureau, etc.).

It may well be that in one business transaction, a service provider acts as an "agent" and in another acts as a "third party". (And in other business transactions, a service provider could play the role of seller or of buyer.) From both a commercial and legal perspective, there is a need to differentiate between (1) "acting on behalf of another Person and being responsible and accountable for associated commitments" versus (2) simply providing a "common service".

E.7.2 Agents

Rule E-23:

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

In most business transactions, the Persons in the role of buyer or seller as end entities, i.e., primary parties (or as "recipient" and "providers" in public administration) can each either undertake all the activities and associated data interchanges directly or delegate a part of these to another person.

A Person who acts for another Person in any capacity is defined as an "agent", (e.g., as a deputy, substitute, representative, factor, emissary, etc.) {See further Oxford/Webster dictionaries}. In commerce, politics, law, etc., there are numerous specific applications and uses of agents flowing directly from this general meaning. In the context of this standard, "agent" is defined as:

***"agent:** a person acting for another person in a clearly specified capacity in the context of a business transaction.*

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

With respect to us e of the term "agent", it is understood that

1) an agent is a Person and thus inherits, must have, all the properties of a person

2) often "intermediary" is used as a synonym for agent, but could also be a "third party". Consequently, the term "intermediary" should not be used.

In a business transaction, “agents” are those persons who undertake a specific business process or function on behalf of a buyer or seller. This basic relationship of agent to a buyer or a seller is illustrated in figure E-7 (as taken from Figure 14 in 6.2.5).

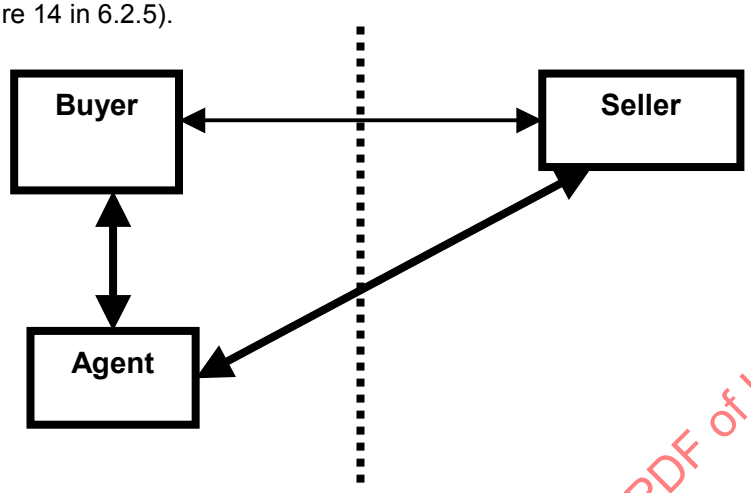

Figure E.13 — Illustration of Buyer Seller Interaction with Buyer Using an Agent

A representation of Figure E-13 utilizing the Formal Description Technique (FDT) "Unified Modelling Language" (UML) as the OeDT, yields the following:

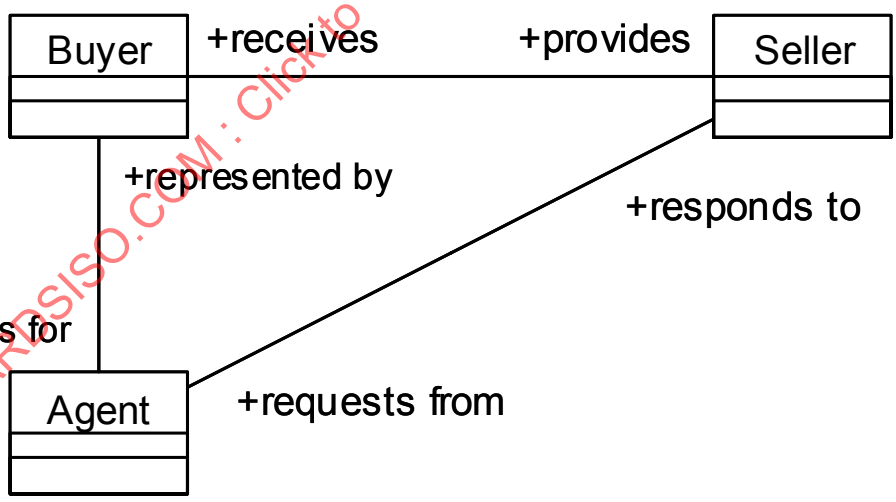

Figure E.14 (UML) — UML-based representation of "Figure 13: Illustration of Buyer Seller

Rule E-24:

The ability to delegate a role to an agent shall be explicitly stated. If constraints shall be satisfied before such delegation can take place, they shall be explicitly stated.

It is recognized that certain roles and responsibilities of a person in a business transaction cannot be delegated to agents. Where this is so, such constraints must be explicitly stated.

Rule 25:

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

This rule captures the present day requirement that certain roles, functions and associated rights and responsibilities are qualified. A Person (natural or legal) may have to meet specified criteria and/or be certified to be able to act as "agent" with respect to a specific activity or function in a business transaction. For example, not any Person can be a doctor, a bank, an engineer, airline company, etc.

A basic buyer/seller agreement and associated business transaction(s) often involves the use of "Agents", (e.g., banks, carriers, logistic chain facilitators, etc.). Interactions between them, i.e., the "agents", in turn can take the form of "subsidiary buyer/seller" agreements.

In day-to-day business transactions, it is often implicitly understood who is responsible for what and when, i.e., where in a process, including the role of agents.[167] Experience, custom and precedence have established these and the Evidence Acts recognize this in the phrase "in the usual and ordinary course of business".

However, for business transactions via Open-edi, such commonly understood delegations to agents must be explicitly stated at a level of preciseness and unambiguity which:

1) facilitates maximum use of information technology among autonomous Persons and their agents;
2) builds trust and confidence for the digital economy; and,
3) ensures re-usability of scenarios and scenario components.

E.7.3 Third parties

Rule E-26:

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

Any business transaction, including commercial agreements and contracts, always involves the two persons primarily concerned, i.e., in our case a person in the role of "buyer" and another person in the role of "seller". Quite often whether or not either person utilizes an agent(s), there still may be other persons involved, i.e., a "third party". Third parties fulfil a role or function mutually agreed upon by the two primary parties most often in a position of neutrality and of trust.

An early example here is that of the notary, "a person publicly authorized to draw up or attest contracts or similar documents, to protest bills of exchange, etc., and discharge other duties of a formal character". {Oxford English Dictionary, 2} As a neutral observer and note taker, a notary has the trust of all persons primarily concerned, i.e., is a trusted third party (TTP) to all the primary persons.[168]

A generic definition for "third party" is:

> "***third party:*** *a Person besides the two primarily concerned in a business transaction who is agent of neither and who fulfils a specified role or function as mutually agreed to by the two primary Persons or as a result of external constraints".*

NOTE It is understood that more than two persons can at times be primary parties in a business transaction.

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167) Within the world of information technology, one also speaks of agents, (e.g., robots, spiders, crawlers, bobots, etc.). It is recommend that such mechanisms, software programs, applications, etc., and other technical components be referred to as "IT agents". This should reduce some of the present confusion.

168) The introduction of paper documents as business and financial instruments (16th century) in support of commerce as a substitute for actual persons being present also required the building of trust and confidence in then at that time new information technology. This was achieved through the use of trusted third parties (TTPs), i.e., notaries. As trust and confidence in the use of paper documents increased the need for TTP services diminished.

In addition to notarial-type functions, clearinghouses and exchanges are prime examples of third parties. The nature of the linkages between buyer and seller and a common third party is illustrated in Figure E-8 (as taken from Figure 15 in 6.2.5).

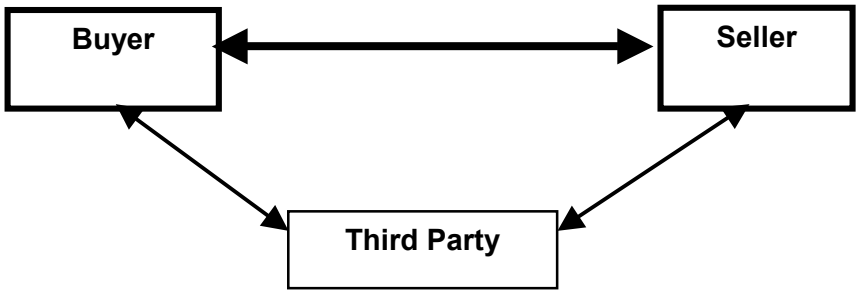

Figure E.15 — Illustration of a Buyer and Seller with a Third Party

A representation of Figure E-15 utilizing the Formal Description Technique (FDT) "Unified Modelling Language (UML) as the OeDT, yields the following:

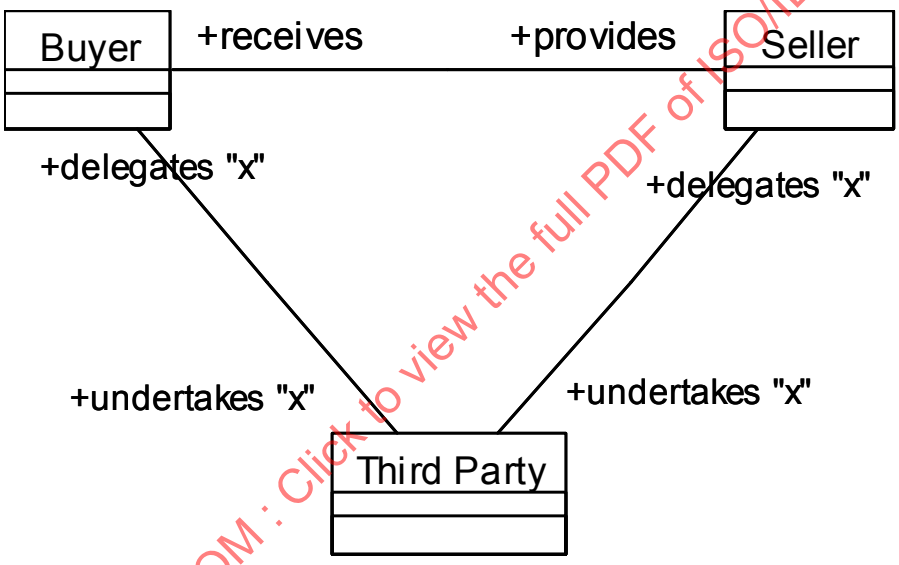

Figure E.16 (UML) — UML-based representation of "Figure 15: Illustration of Buyer and Seller with a Third Party"

E.8 Person and external constraints: "regulator"

It is understood with respect to present day business transactions, as well as with respect to those enacted in the future based on Open-edi standards, that there are external constraints on both (1) permitted behaviour of buyers and sellers; and, (2) the nature of the goods and services being provided.

Rule E-27:

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 as players and their roles as buyers or sellers in a business transaction introduces an additional third role, namely, that of a "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 as:

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

Key properties of an entity known as a "regulator" are:

1) that it must be a Person.

   Increasingly this is a "legal person", i.e., organization, instead of an individual[169)]

2) a “regulator” represents an authority who prescribes principles, policies or rules which govern or control (a) behaviours of persons such a limiting the set of rights and obligations they can commit to in a business transaction, (b) the manufacture/provisioning of goods and/or services[170)] and, (c) interchanges of the same among Persons.

3) The domain or applicability of the role of a "regulator" is usually linked to that of a jurisdiction.[171)]

It is assumed that prescription(s), (e.g., laws, regulations, policies, directives, etc.), issued by Persons in their role of regulators will be:

— harmonized and consistent among and between all levels of government (domestically and internationally);

— be clear, predictable and precise providing equal treatment for digital and non-digital transactions;

— promote and support the use of open standards and interoperability including these rules sets, (e.g., laws, regulations, policies, etc.); and,

— that external constraints prescribed by regulators on business transactions (should) have the attributes of consistency, predictability, clarity, flexibility, etc.*[172)]

E.9 Person and external constraints: "individual", "organization", and "public administration"

E.9.1 Introduction

It is understood with respect to present day business transactions, as well as with respect to those enacted in the future based on Open-edi standards that there are external constraints on both (1) permitted behaviour of buyers and sellers; and, (2) the nature of the goods and services being provided. 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.

A very common, almost generic requirement of external constraints are those which pertain to a Person where one is often required to distinguish whether the Persons participating in a business transactions are deemed to be "individuals" or "organizations".

From a legal perspective, generally applicable worldwide, there are basically two types of persons, namely, "natural persons", and "legal persons" (a.k.a. "artificial persons").[173)]

169) In many jurisdictions such as "constitutional monarchies", the "regulator" is, in law, a natural person, i.e. a King or Queen, in whose name laws and regulations are issued (or via an "agent of the Crown" such as a "minister of the Crown".

170) For example, the sale of certain kinds of goods may be prohibited by a regulator, or if allowed only under specific rules and conditions (e.g. pharmaceuticals products sold as "drugs"), sales of alcohol prohibited to minors, etc.

171) Jurisdictions of various categories and at various levels exist. The issue of identification, mapping and categorization of jurisdictions. See further ISO/IEC 18038 - Information technology - *Identification and Mapping of Various Categories of Jurisdictional Domains".* This new standard is currently being developed by ISO/IEC JTC1/SC32.

172) These and others are all objectives resulting from the OECD Ministerial Conference on Electronic Commerce (7-9 October 1998). {See further the URL <<http://www.oecd.org/subject/e_commerce/>> and A Global Action Plan for Electronic Commerce prepared by Business with Recommendations for Governments. {See further the URL <<http:www.ottawaoecd.conference.org>>}

173) Historically, male human beings have always been recognized as having legal rights and duties, able to make commitments, etc., i.e., as "Persons". For female human beings, this was an "on" and "off" situation well into the 20th century. For example, in Canada, it was not until 1921 that women were recognized as persons with a right to vote, etc., i.e., female human beings equally recognized as natural persons with the same rights and obligations as male human beings.

Initially, "human being" and "person" were synonymous both in usage and in law. The introduction in law of the now internationally legally recognized concept of the entity of "legal person", (a.k.a., "artificial person"), means that person and "human being" are no longer synonyms and the latter have become known as "natural persons". Figure E-9 illustrates this common legal perspective[174].

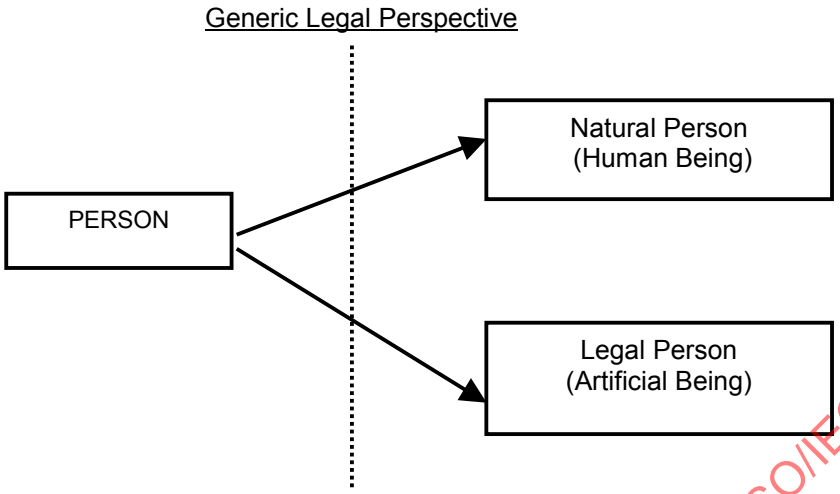

Figure E.17 — Generic Legal Perspective of "Person" (Graphical Representation)

A representation of Figure E-17 utilizing the Formal Description Technique (FDT) "Unified Modelling Language (UML) as the OeDT, yields the following:

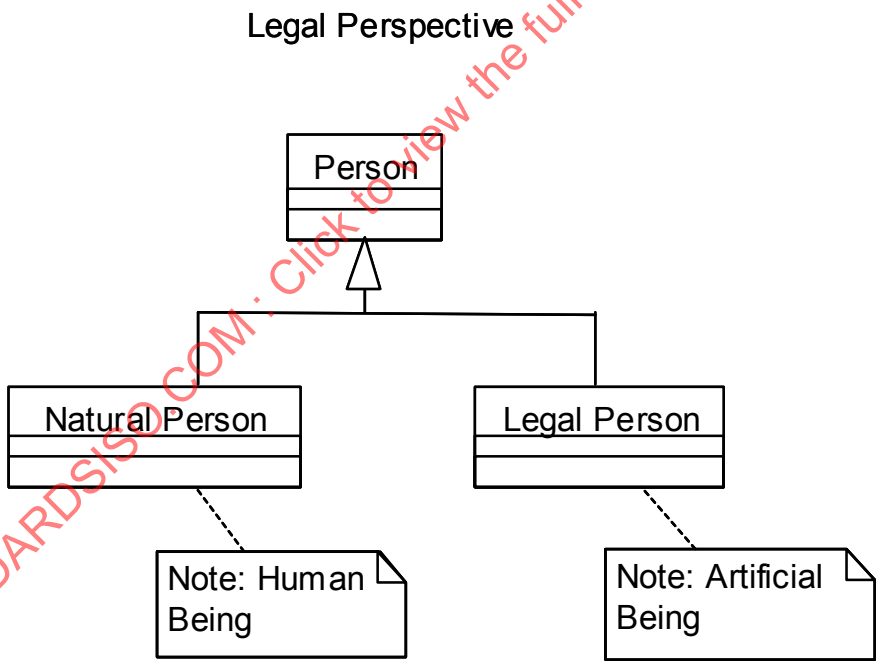

Figure E.18 (UML) — UML-based representation of "Figure 17: Generic Legal Perspective of "Person"

The need for raising capital, (e.g., building and outfitting of a ship for trade to the East Indies (other than by a King or Prince, i.e., private sector instead of public sector financing), to support the expanding global world economy in the 17th century outstripped the financial capacity of partnerships and similar structures by which natural persons formed companies, i.e., initially an agreement among two or more natural persons as "companions". Thus laws were passed in different jurisdictions creating a "legal" or "artificial" person, i.e., as limited liability joint stock companies, in order to be able to raise the substantial capital for what were the mega projects of those earlier times. See further the seminal work by W.R. Scott, The Constitution and Finance of English, Scottish, and Irish Jointstock Companies, Cambridge, 1912.

174) This is true for most of the legal systems currently in use world-wide (e.g. common law, civil law, "Russian" law, "Chinese" law, etc.

Laws, statutes, regulations, policies, etc., (whatever the jurisdiction) either:

1) apply to "Person" in general, i.e., to both natural and legal persons and do not differentiate between the two[175)]

2) apply only to "natural persons" or "legal persons", but not both; or,[176)]

3) differentiate between "natural person" and "legal person" but apply to both[177)]

In developing the Open-edi scenarios and scenario components involving minimal External Constraints, it is important to ascertain where and when which of the three noted options applies.

Rule E-28:

From a minimal External Constraints perspective, the three basic subtypes of Persons as role players in any business scenario are:

1) "individual",

2) "organization", and

3) "public administration"

While "natural person" may be a more correct term for some technical legal reasons, the term "individual" is commonly used, i.e., in the context of rights and obligations, (e.g., Charter rights, entitlements, privacy, etc.).

Similarly, "organization" is the concept/term commonly used in information technology in areas such as global unambiguous identification of organization for electronic addressing, (e.g., X.500 standards), security services, (e.g., X.509 standard on which PKI (Public Key Infrastructure) is based, etc.).

It is understood that:

1) a "natural person" can participate in a business transaction as either an "individual" or an "organization Person"; and,

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

Consequently, this standard uses the terms "individual", "organization", and "public administration" as the three basic subtypes of Persons as players in any business transaction involving minimum External Constraints. Figure E-10 (as taken from Figure 16 in 6.2.7) illustrates this.

175) Primary examples here are national goods and services taxes or local sales taxes. These apply to any Person selling a good or service irrespective of whether they are a "natural person" or a "legal person".

176) A key example here is “human rights” which apply only to natural persons in their role as individuals.

177) An example here is the registration of automobiles in that both natural persons and legal persons can register and own an automobile. Another example here is of laws pertaining to privacy/data protection requirements which differentiate between persons as "individuals" and "organizations" in rights and obligations.

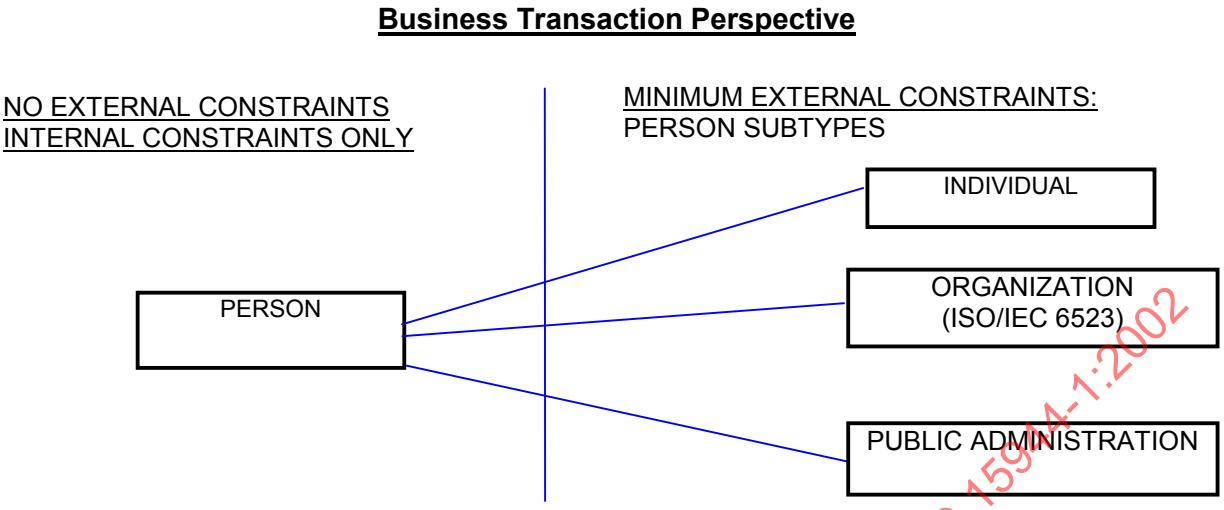

Figure E.19 — Integrated Business Transaction Perspective of "Person": Minimum External Constraints

A representation of Figure E-19 utilizing the Formal Description Technique (FDT) "Unified Modelling Language (UML) as the OeDT, yields the following:

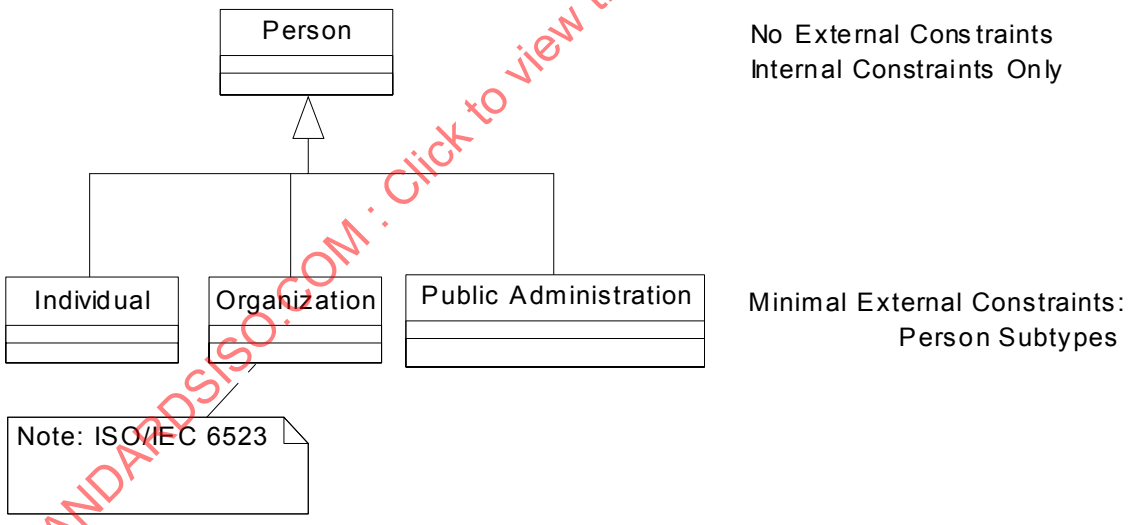

Figure E.20 (UML) — UML-based representation of "Figure E-19: Integrated Business Transaction Perspective of "Person": Minimum External Constraints

E.9.2 "Individual"

"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.

Individual[178] is defined as:

> *"**individual:** A Person who is a human being, i.e., a natural person, who acts as a distinct indivisible entity or is considered as such, acting on its own behalf".*

NOTE 1 The use of the term "Person" in the definition of "individual" means that an "individual" inherits all the properties and behaviours of "Person".

NOTE 2 The definition of "individual" is neutral towards and independent of:

- the manner in which various jurisdictions have differing rules as to what criteria must be met for an entity to be considered/qualify as a "natural person";
- any qualifications which a jurisdiction may place on a natural person as an "individual" with respect to their ability to make commitments, be held responsible for, etc., (e.g., "minors", "being incapacitated", etc.).

NOTE 3 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 or service provided by that Person in the role of "seller". Here it is possible that Consumer protection requirements also apply to a Person who is a buyer as in "individual". {See Section E-16 on "consumer" and "vendor".}

E.9.3 Organization, organization part and organization person

Rule E- 29:

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 jurisdictions.

An international standard definition for "organization" exists and is widely used especially in the areas of information technology/communications infrastructure, (e.g., OSI, X.500, Internet addressing, etc.), security services, etc. It is provided in the international standard ISO/IEC *IS 6523, Information Technology - Structure for the identification of organizations and organization parts, Part 1 (1998): Identification of organization identification schemes; and, Part 2: Registration of organizations identification schemes*. This standard has recently been revised to meet requirements arising from increasingly widespread use of information technology.

The ISO/IEC 6523 standard defines "organization[179] as:

> *"**3.1 organization:** A unique framework of authority within which a person or persons act, or are designated to act, towards some purpose.*

NOTE The kinds of organizations covered by this part of ISO/IEC 6523 include the following examples

a) an organization incorporated under law;

b) an unincorporated organization or activity providing goods and/or services including:

   1) partnerships;

   2) social or other non-profit organizations or similar bodies in which ownership or control is vested in a group of individuals;

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178) No standard definition currently exists internationally for "individual". A review of international standards did not identify any standard which contained and defined the concept/term "individual". Rather, international standards tend to define particular roles of an individual in relation to a specific business process along with associated data elements, (e.g., as a "holder of a token" issued by an organization as in passport holder (ISO/IEC 7501), (credit) card holder (ISO/IEC 7812), etc.).

179) The ISO/IEC 6523 term/definition "organization" is found in this standard in clause 3 as "3.44".

3) sole proprietorships

4) governmental bodies

c) groupings of the above types of organizations where there is a need to identify these in information interchange".

[and in ISO/IEC 6523-1:1998 (F):

*"**3.1 organisation:** Cadre unique d'autorité dans lequel une ou plusieurs personnes agissent ou sont désignées pour agir afin d'atteindre un certain but.*

NOTE Les types d'organisations couverts par la présente partie de l'ISO/CEI 6523 comprennent par exemple les éléments suivants:

a) organisations constitutées suivant des formes juridiques prévues par la loi;

b) autres organisations ou activitées fournissant des biens et/ou des services, tel que

1) sociétés en participation;

2) organismes sociaux ou autres à but non lucratif dans lesquels le droit de propriété ou le contrôle est dévolu à un groupe de personnes;

3) entreprises individuelles;

4) administrations et organismes de l'état;

c) regroupements des organisations des types ci-dessus, lorsqu'il est nécessaire de les identifier pour l'échange d'informations.]

This term and definition of "organization" is independent of whether the "Person" here is a "natural" or "legal" person. Any combination can form a "framework of authority", which incorporates decisional/commitment capability, responsibility, traceability, accountability, etc., attributes.

It is important to highlight and bring to the fore some key aspects of this international standard definition from the perspective of a business transaction.

— The phrase *"act, or are designated to act, towards some purpose"* links into the "Process"[180] component of the business transaction, i.e., one does not start a process without some purpose in mind especially in a business transaction.

NOTE an organization incorporated under law

— This part of the definition recognizes that each jurisdiction (at whatever level) can have its own rules for "incorporation", i.e., qualifying and registering a legal or artificial person.

NOTE an unincorporated organization or activity providing goods and/or services including:"

There are three key element to this definition and accompanying Note b) which should be noted from a business transaction perspective; namely:

1) if a Person provides a good or service, irrespective of the person being a "natural person" or a "legal person", the Person is deemed to be an "organization".

180) See the normative section 5.3 and Annex F (Informative).

2) this definition applies irrespective of whether the Person is providing the goods and/or services on a commercial basis, i.e., for-profit, or on some other basis, (e.g., public sector administrative, services to the public, with or without (some cost-recovery) fees, exchanges of information among public administrations, etc.).

3) this definition applies, whether or not in a particular jurisdiction examples of entities given in "Note 3 b)" are, or need to be, "incorporated".

NOTE recognizes and takes into account that "organizations" in turn can re-group themselves in relation to the outside world and thus represent themselves as another different single organization for purposes of information interchange and act as a "framework of authority".

E.9.4 Organization Part

A key property of an "organization" is that, unlike an "individual", it is deemed to be divisible, i.e., can have one or more distinct parts identified for information interchange.

The ISO/IEC 6523 definition for "organization part" is:

> "***3.2 organization part:*** *Any department, service or other entity within an organization, which needs to be identified for information interchange".*[181)]

It is up to each organization to decide what organization parts it wishes to have. Large organizations may have hundreds of organizational parts. Small and medium sized organizations may have just a few.[182)]

Of importance here from a business transaction perspective is that organization parts must be taken into account when modelling business transactions as scenario(s), scenario attributes and scenario components. This is especially so where organization parts form a distinct part of the external behaviour of an organization.

E.9.5 Organization Person

From a business transaction perspective, one needs to be able to qualify and identify which organization parts can commit to and be held responsible/accountable with respect to a business transaction, i.e., on behalf of the organization.

Open-edi is more than just information exchange electronically. The context of business transaction adds key additional properties and behaviours. One of these is the need to be able to unambiguously identify and ascertain whether or not an "organization part" has the attributes required for it to be able to act on behalf of an organization as a "person" in a business transaction. A solution to this issue is the introduction of the concept/term "organization person" to reflect the added requirement of an "organization part" of being able to support commitment exchange aspects in a business transaction.

181) The concept/term and associated definition for "3.2 organization part" was added to this international standard when it was revised in 1998. The primary purpose was to reflect and incorporate the real world fact/requirement that an organization has sub-components which undertake specific roles or functions within that organization, i.e., "organization parts". Consequently, each "organization part" may need to be identified as an "unique address" (or addressable location) within an organization to which information is to be sent to or received from, i.e., for "information interchange". (The X.500 Directory Services standard is based on and supports this concept). This requirement exists irrespective of whether physical or virtual objects are to be interchanged. See further in Annex D (Informative), Section D.4.2.2.1 - ISO/IEC 6523 and the Identification of "Roles" in Scenarios and Scenario Components.

182) Given the wide variety in structures of organization, scope (from local to multinational), size (from a 2-3 employee SME to a Fortune 500 company), it suffices to note that there exist a multitude of organization parts such as types of organizational units, functions, positions/titles, etc. Similarly for information exchange purposes, many organizations have one or more locations specified as physical or electronic addresses to which information can be sent to or received from. Existing standards are deemed to cover information exchange with respect to organization and organization parts.

Rule E-30:

In a business transaction, an organization Person may make commitments for an organization or organization part.

Within the context of (a) the definition of "Person"; (b) the international standard definitions for "organization" and "organization part"; and, (c) the added requirements of commitments in a business transaction, it is necessary to introduce the concept/term and associated definition of "organization Person" as follows:

> *"**organization Person:** an organization part which has the properties of a Person and thus is able to make commitments on behalf of that organization.*

NOTE 1 an organization can have one or more organization Persons.

NOTE 2 an organization Person is deemed to represent and act on behalf of the organization and to do so in a specified capacity.

NOTE 3 an organization person can be a "natural Person" such as an employee or officer of the organization

NOTE 4 an organization Person can be a legal person, i.e., another organization*".*

Figure E-19 (as taken from Figure 17 6.2.7) illustrates the linkages among “organization”, “organization part”, and “organization Person” and does so in the context of commitment exchange versus information exchange.

Figure E-19 differentiates between (a) using solid lines, the added legal and commercial perspectives of "organization → organization part → organization Person" relation of commitment exchange plus information exchange and, (b) using dotted lines, the existing information exchange perspective of ISO/IEC 6525 of organization → organization part (and to various examples of organization parts) for the purpose of information exchange only.

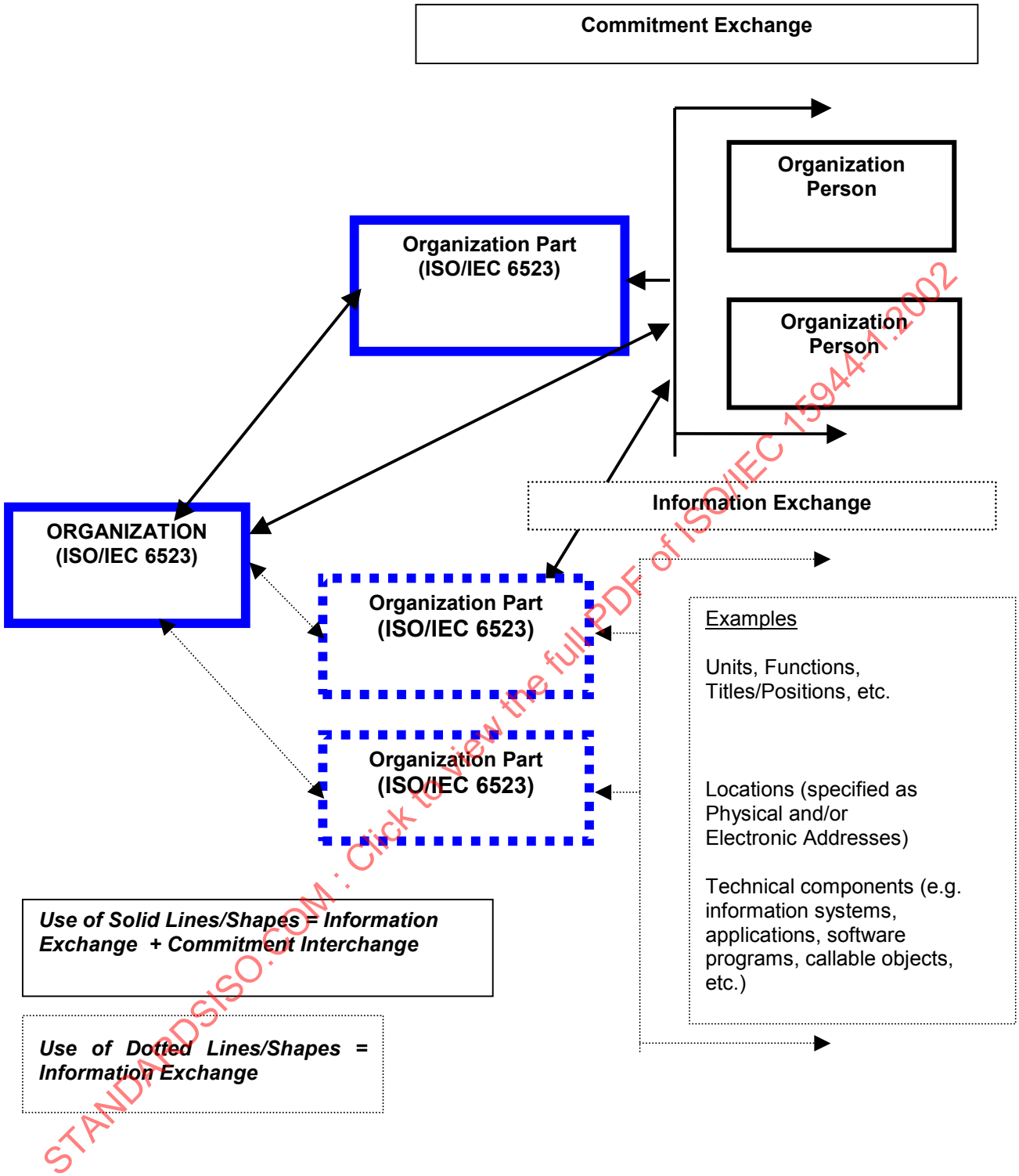

Figure E.21 — Illustration of Commitment Exchange versus Information Exchange for Organization, Organization Part(s) and Organization Person(s)

A representation of Figure E-21 utilizing the Formal Description Technique (FDT) "Unified Modelling Language (UML) as the OeDT, yields the following:

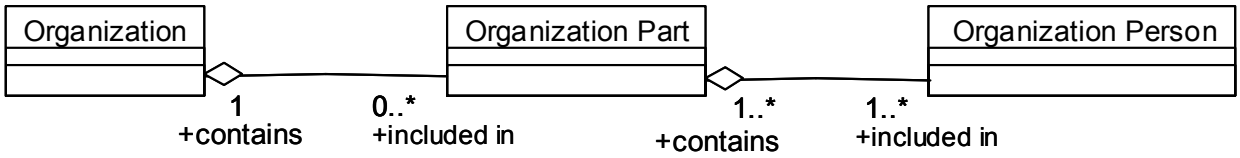

Figure E.22 (UML) — UML-based representation of "Figure E-21: Illustration of Commitment Exchange versus Information Exchange for Organization, Organization Part(s) and Organization Person(s)

E.9.6 Public Administration

The third subtype of a Person as a party to a business transaction is that of "public administration". A "public administration" is a Person who is deemed to have all the attributes of an organization plus at least one unique additional attribute, from the perspective of a business transaction. A public administrator has the attribute that in addition to being able to play the roles of an organization, i.e., "buyer" and "seller", it can also act on behalf of a "regulator".

NOTE This role of acting on behalf of a "regulator" is unique to "public administration" and is independent of whether a public administration decides to administer the regulatory functions (e.g. government services) itself or delegate (e.g. outsource) such a function, i.e., to an "agent" acting on its behalf.

The definition of "public administration" is:

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

E.9.7 Summary overview of the three subtypes of persons and the three roles

In this section are summarized the rules and guidelines found above in

- Section E.2 on “Person”,
- Section E.5 on “buyer” and “seller”,
- Section E.6 on external constraints and “regulator”; and,
- Section E.8 on external constraints and “individual”, “organization”, and “public administration”.

Not all Persons as parties in a business transaction can perform all three roles, especially the role of regulator. For the Business Transaction Model with respect to the above noted minimal external constraints identified in sections E.6 and E.8, the permitted intersects of Persons as subtypes with respect to the three basic roles noted above can be summarized in matrix form. Figure E-12 (taken from Figure 18 in 6.2.7) illustrates these permitted intersects.

Persons	Roles in (Electronic) Business Transaction		
	Buyer	Seller	Regulator
Person (No External Constraints)	YES	YES	Not applicable
Person – Individual	YES	NO (YES)[183)]	NO
Person – Organization	YES	YES	NO(YES)[184)]
Person – Public Administration	YES	YES	YES

Figure E.23 — Business Transaction Model: - Basic Players and Roles Public Administration Constraints

E.10 Person and external constraints: consumer and vendor[185)]

Another minimum External Constraint that needs to be taken into account in business transactions is that commonly known as "Consumer Protection". This sections focuses on minimal External Constraints of this nature but does so in a very limited manner. Its purpose is to assist those using this standard to build scenarios, scenario attributes and scenario components as registerable and re-useable objects.

Rule 31:

From a minimal External Constraints perspective, a common set of constraints on a business transaction where the buyer is an individual is that of a consumer protection nature.

A "consumer" is defined as:

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

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

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

183) From an IT standards perspective, (e.g., ISO/IEC 6523), an unincorporated activity providing a good, service, and/or right is deemed to be an organization. However, there may be legal requirements in a jurisdiction, where a "natural person" in the role of a seller is deemed to be an "individual" and not an organization. It is up to such jurisdictions to resolve how such an approach is harmonized with Privacy/Data Protection requirements.

184) Increasingly products and services provided by public administrations on behalf of a regulator are being "outsourced" to organizations (e.g., private sector for-profit or not-for-profit organizations which perform the role of “public administration”).

185) It is outside the scope of this standard to address external constraints on a business transaction of the nature of "Consumer Protection". The sole purpose of this section is to ensure that when one uses this standard to model business transactions or parts of business transactions as scenarios and scenario components, one does note under "External Constraints" whether of not the scenario and/or the scenario component supports external constraints of a consumer protection nature.

There is an ISO Consumer Policy Committee (COPOLCO) which is addressing the standardization of consumer protection requirements. It is anticipated that when such standards are developed and agreed to that these will (1) utilize this standard as a Normative Reference; and (2) that in turn, those using this standard will be able to reference and utilize such international consumer protection standards to specify external constraints included in a re-useable scenario and/or scenario component. See further ISO/IEC JTC1/SC32/WG 1 N165 2001-01-10. The title of this document is "Response to COPOLCO to the request for comments on the `Draft for Consultation - Desirability and Feasibility of ISO E-Commerce Consumer Standards: A Preliminary Report, October 2000”.

NOTE 3 It is recognized that *external constraints* on a *buyer* of the nature of consumer protection may be peculiar to a specified jurisdiction[186)]

Further, a "vendor" is defined as:

> ***vendor:*** *a seller on whom consumer protection requirements are applied as a set of external constraints on a business transaction.*

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

NOTE 2 It is recognized that external constraints on a seller of the nature of consumer protection may be peculiar to a specified jurisdiction[187)]

In conclusion, it should be stated that many of the external constraints of a consumer protection nature may well already be included as part of the modeling of simple business transactions. Examples here include warranties, ability of the seller to inform the buyer of defects, etc. Annex F (Informative) - Business Transaction Model: Process Component contains many such examples.

186) Laws and regulations exist within and among jurisdictions and are the primary source of "External Constraints" on Business Transactions. Categorization and specification of sub-classes of external constraints is outside the scope of this standard. ISO/IEC JTC1/SC32 is sponsoring a NWI (see ISO/IEC JTC1 N5846) which has been accepted (see ISO/IEC JTC1 N6204) to address the issue of jurisdictions as it impacts specification of external constraints on business transactions. This standard is directed at being able to identify and reference laws and regulations impacting scenarios and scenario components. Development is underway on ISO/IEC 18038, *Information technology - Identification and Mapping of Various Categories of Jurisdictional Domains*

187) See above footnote 63.

Annex F
(informative)

Business transaction model: process component

F.1 Introduction

F.1.1 Purpose

The purpose of this Annex F is to provide informative and explanatory text for the rules and terms and definitions found in 6.1.5 and 6.3 of the normative part of this standard. The rules as found here in this Annex F in bold are the same as those stated in these two Sections even though both have been re-numbered in this Annex.

This Annex is also meant to assist users of this standard who are either not familiar with standards in general or whose main focus to date has been on Functional Services Views (FSV) standards only.

This is one of three Annexes which provide additional information on one of the three fundamental components of a business transaction, namely, "person", "process", and "data". These three fundamental components are presented graphically in Figure F-1 (as taken from Figure 7 in 6.1.5).

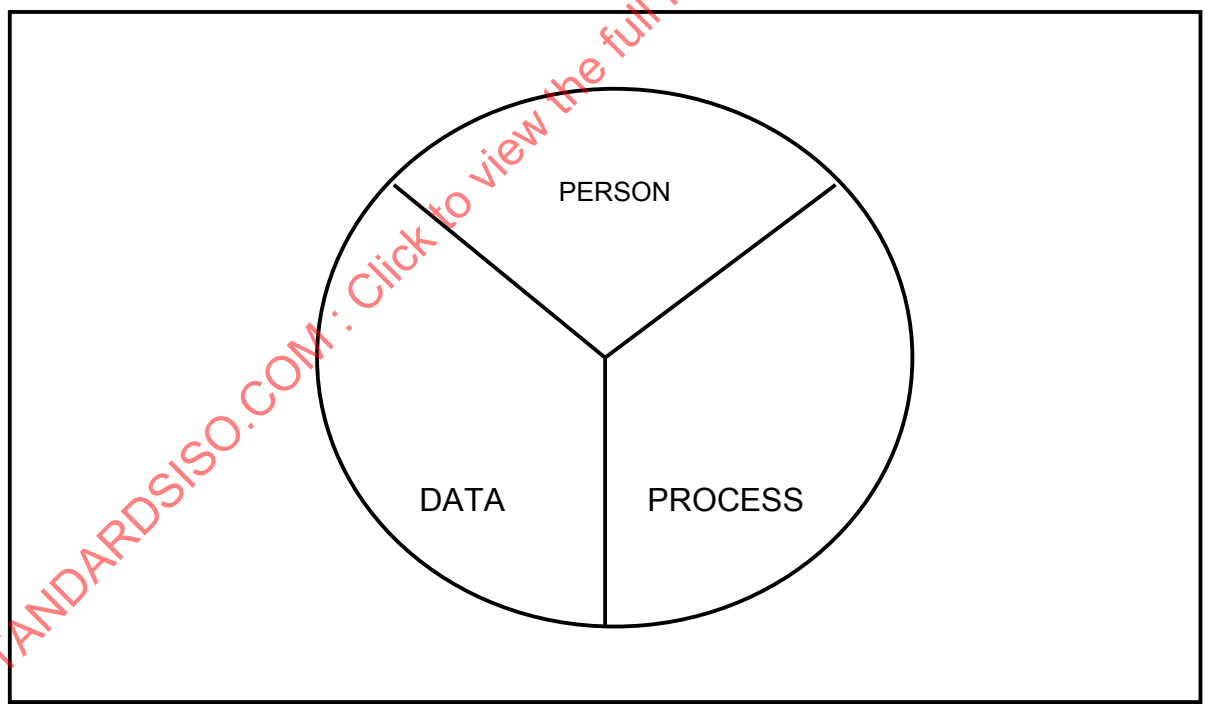

Figure F.1 — Business Transaction Model — Fundamental Components (Graphic Illustration)

A representation of Figure F-1 utilizing the Formal Description Technique (FDT) Unified Modelling Language (UML) as the OeDT here for this rule, yields the following:

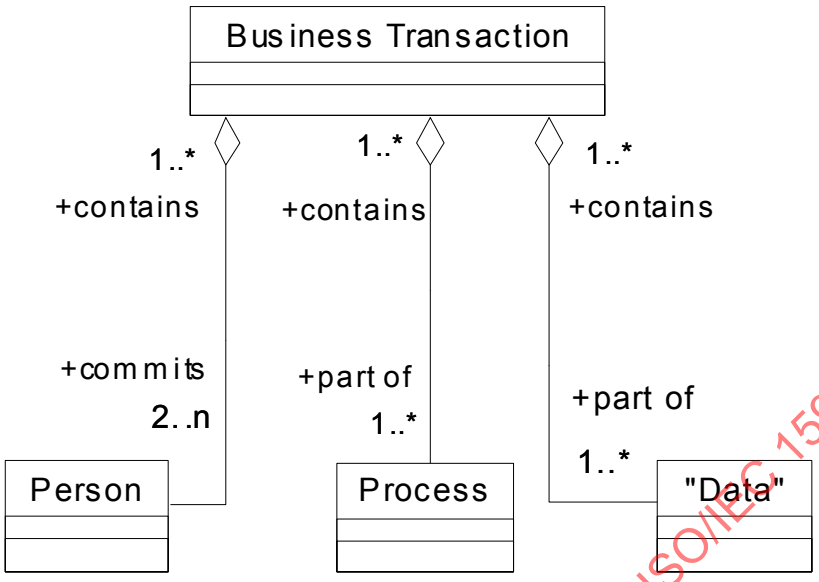

Figure F.2 (UML) — UML-based representation of Figure F-1 — Business Transaction Model — Fundamental Components

The Business Transaction Model has been developed to serve as a common high level and non-technical view of a business transaction. The basic assumption of this Business Transaction Model is that this view is derived from both (classical) commerce models and IT models.[188] These have been integrated into commonly understood (basic) processes which can be shared, from the various perspectives of the Business Operational View, i.e., commercial, legal, public policy, standardizers, IT specialist and other interested parties. {See further Figure 3 in Section 0.2 "Requirement on the Business Operational View Aspects of Open-edi"}.

Sections F.1 through F.3 serve as the explanatory text to 6.1.5, 6.3 and 7 of the normative part of this standard. Sections F.4 and F.5 serve to provide summary information on the background studies which resulted in the five phases of the Process Component. **A key purpose here is to provide a link between the (classic) economic models of the real business world and the Business Transaction Model for Open-edi.**

F.1.2 Sources of contents

Three terms and definitions in ISO/IEC 14662:1997 "Open-edi Reference Model" serve as the basis and point of departure for our understanding of the process component in the Business Transaction Model; namely:

- business;
- business transaction; and,
- Business Operational View (BOV).

They are defined as follows[189]

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

188) For example, some IT models contain "system" instead of "Person".

189) See Annex A for the ISO French language equivalents of these terms and definitions.

> ***"business transaction:*** *a predefined set of activities and/or processes of organisations which is initiated by an organisation to accomplish an explicitly shared business goal and terminated upon recognition of one of the agreed conclusions by all the involved organisations although some of the recognition may be implicit."*
>
> ***"Business Operational View (BSV):*** *a perspective of business transactions limited to those aspects regarding the making of business decisions and commitments among organizations which are needed for the description of a business transaction."*

In the context of these Open-edi definitions and for this standard, a "process" is defined as:

> ***"process:*** *a series of actions or events taking place in a defined manner leading to the accomplishment of an expected result".*

Many models exist and are in use for analysing and describing the processes and steps in a business transaction. This Annex F includes a survey of "buying and selling" models (including that developed by G. Zaltman whose works were the basis of earlier significant contributions to standards development work resulting in the Open-edi Reference Model).

The Process component of the Business Transaction model incorporates common elements of these models, takes into account commercial, legal and IT perspectives and integrates them into the context of this standard development work on the Business Operational View.

F.2 Process component

F.2.1 General rules

Integrating these classic and current models in the context of the BOV results in five basic sets of activities or "Phases" in a business transaction; namely:

- Planning;
- Identification;
- Negotiation;
- Actualization; and,
- Post-Actualization[190].

Business transactions, and in particular those which are Open-edi based, can be viewed from a process perspective as five distinct activities. This perspective on the process component is linked to the making of business decisions and commitments in a business transaction. By providing this common view to business transactions, one provides a single frame of reference for discussion of many of the diverse issues as well putting these issues in a context[191].

Rule F-1:

Conceptually, a business transaction can be considered to be constructed from a set of fundamental activities. They are planning, identification, negotiation, actualization and post-actualization.

These five basic sets of activities integrate business models taking the perspective of the seller, the perspective of buyer and that of a combined buyer-seller view as well as that of contract formation. Also incorporated is the approach of "early loose couplings" and "late bindings". Factored into this division of five phases are common external constraints of the nature of privacy/data protection, consumer protection and similar legal/regulatory requirements as external constraints on business transactions, i.e. those in addition to internal constraints. {See further 6.1.6 "Classes of Constraints"}.

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190) The terms for the five phases, i.e., Planning, Identification, Negotiation, Actualization and Post-Actualization were derived so as to provide terms which are neutral towards existing economic models, as well as existing IT models. They were also derived to map to existing commercial and legal frameworks as well as public policy requirements.

191) For example, in "Identification", this may be the point to introduce the need for authentication whereas the area of "Negotiation" or "Actualization" may be the point to pursue the issue of digital signatures.

This division into five phases facilitates the identification of, and mapping to, existing standards which can be utilized in support of Open-edi based implementations. It also facilitates specification and re-use of scenarios and scenario components and also reduces their cost of construction by maximizing (re-) use of existing standards and related tools. {See further Section F.3 below}

Rule F-2:

These five fundamental activities may take place in any order.

It is understood that these five basic activities need not occur in a sequential manner. For example, data pertaining to post-actualization aspects, (e.g., warranties), may well be made available as part of the Planning Phase. For example, data pertaining to Post-Actualization aspects, (e.g., warranties, consumer protection requirements, etc), may well be made available as part of the Planning Phase. Or information on the choices in methods and terms of payment often forms part of the Planning Phase.

Rule F-3:

A Person may terminate a business transaction by any agreed upon method of conclusion.

In any business transaction any party to the transaction can terminate the business transaction upon one of the agreed conclusions by all those involved although some of the recognition may be implicit. A common example here is that of one of the parties deciding not to respond anytime during the process, (e.g., a time out).

Rule F-4:

The five fundamental sets of activities may be completed in a single continuous interactive dialogue or through multiple sets of interactions among buyers and sellers and possibly involve agents and third parties as well.

For example, the Immediate Settlement Model[192)] is a trade model where the entire business transaction process, such as planning, identification, negotiation, actualization, (e.g., delivery of merchandise and payment), is completed in real time under the Open-edi environment.

A typical case here would be downloading a software product or music from the seller with the buyer paying with e-money or a debit account. Note that in this example the planning and identification phase can pertain only to the identification (and authentication) of the buyer is not required.[193)] The good or service is simply delivered to the electronic address provided. This type of electronic business transaction is equivalent to a buyer walking into a store and paying with cash. Because the seller has 100% confidence in the value token being provided in exchange for the good or service provided, there is no need to identify the buyer. If at times a warranty is provided, it is up to the buyer to decide whether or not to exercise the warranty. Doing so requires the buyer to identify itself to the seller but this is at the buyer's discretion, (e.g., would be an optional information bundle(s) in the scenario for this business transaction). This would be a scenario involving internal constraints only.

F.2.2 Planning phase

In the Planning Phase, both the buyer and seller are engaged in a process to decide what action to take for acquiring or selling a good, service and/or right. From a seller's perspective, the Planning Phase relates to all those actions or events whereby data pertaining to the availability of a good or service is made available. It is up to the seller to decide how much data to make available and at what level of granularity without having any information on a specific buyer.

For example, the seller may decide to limit the level of detail of information or not provide particular information about a good or service without the prospective buyer (1) identifying itself; and, (2) agreeing to maintain the confidentiality of the information provided by the buyer. All information made available on the Internet by sellers of goods and services which can be accessed free of charge and without identification, (e.g., no cookies), is a good example of the Planning Phase.

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192) See further 6.6.3.2 "Trade Models by Settlement Type".

193) See further Section D.4.2 "Anonymity" in Annex D "Existing Standards for the Unambiguous Identification of Persons in Business Transactions (Organizations and Individuals)".

From a seller's perspective, common examples here include advertising, market research, promotions, provision of catalogues, direct marketing, product branding and positioning of a good or service, auctions, etc.

Many public and private sector organizations as well as individuals provide information products for free, (e.g., reports, "advice", documents, software, music, etc.). Here often the information pertaining to the Negotiation, Actualization and Post-Actualization Phase of the business transaction is included. Often this is in the form of an intellectual property protection condition, (e.g., the product or service is available for free but for personal use only is not to be resold, use of product must identify and acknowledge the source, etc.).

The buyer by downloading the "for free" product service, i.e., Actualization Phase, is deemed to agree to abide by the associated terms and conditions, i.e., the contract formation, and abide by them in the use of the product, i.e., Post-Actualization Phase.[194)]

From a buyer's perspective, the Planning Phase pertains to all those actions or events whereby:

1) the potential buyer searches among potential suppliers of a good or service based on information made available by these suppliers of goods and services, i.e., from a buyer's perspective potential sellers;

2) the potential buyer requests information, product/service literature, etc., from potential sellers; and/or,

3) the potential buyer makes a more explicit statement of needs in the form of a request for proposals (RFP), for quotation(RFQ), price quotes, etc. It is becoming increasingly common and often required for public sector organization to publicly post (detailed) specifications for the purchase of a good, service, and/or right[195)].

F.2.3 Identification phase

The Identification Phase pertains to all those actions or events whereby data is interchanged among potential buyers and sellers in order to establish a one-to-one linkages. These one-to-one linkages pertain to particular goods or services, availability of the same, the identification of the buyer and seller to each other on a one-to-one basis, etc.

The Identification Phase also pertains to exchanges of information bundles required to progress from the Planning Phase to the Negotiation Phase as is mutually acceptable. A key result of the Identification Phase is the transformation from a loose coupling among potential buyers and sellers to an early one-to-one binding required, and mutually agreed to, for the Negotiation Phase to begin.

From a seller's perspective, there may well be limits on the nature and level of detailed of data a seller is willing to provide on a particular good or service, i.e., in the Planning Phase, without identification of the potential buyer.

From a buyer's perspective, there may well be requirements for more detailed data on the prospective seller, especially where the seller is represented to the buyer in electronic form.

A key aspect of the Identification Phase is to ensure that “minimum External Constraints: Public Administration” of the nature of privacy/data protection, consumer protection, etc. can be complied with if required[196)]. This requires the seller to determine whether the person as potential buyer is an "individual" or an "organization" (a common minimum External Constraint) or can simply be considered a “Person (a no External Constraints perspective, i.e. internal constraints only).[197)]

194) A common example of terms and conditions attached to for free products or services are those pertaining to intellectual property rights, i.e., the product or service can be downloaded for free but the seller retains the intellectual property rights, (e.g., copyright). Common terms and conditions here include "For personal use only and not to be sold (or parts offered for sale)", "users of this product must identify and acknowledge the source where this product forms part of their work", etc. It is common practice for the seller to require a buyer to explicitly acknowledge having read, understood and agreed to abide by such terms and conditions before a download occurs.

195) Where a Request for Proposal (RFP) or request for bid (RFB) contains confidentiality or intellectual property provisions, persons participating in such a RFP or RFB would be expected to ensure that conditions of this nature are adhered to in the exchange of information bundles.

196) This is independent of whether these external constraints are of a regulatory or self-regulatory nature

197) For the purposes of this standard, and in conformance with ISO/IEC 6523-1, unincorporated persons who provide a good or service, i.e., natural persons, who as role players are "sellers" in a business transaction are deemed to be an “organization”.

It is up to each seller to decide how much data and at what level of detail about a good or service offering to make available without knowing the identity of a particular prospective buyer.

From an electronic business transaction perspective, the Planning Phase of the Process component would include product or service information made available via the Internet WWW which a prospective buyer could view or download without "cookies".

It is also important to note that the Planning Phase covers all activities of persons including organizations or individuals as well as organizations private or public sector making freely available information about themselves or produced by the same[198]. The boundary of the Planning Phase to the Identification Phase is marked by characteristics such as:

— the seller requires to know the identity of the prospective buyer;

— the seller requires the prospective buyer to agree to a confidentiality arrangement before furnishing more detailed or what is considered proprietary data on the good or service to be provided; and/or,

— the seller requires and the prospective buyer agrees to "return" (or destroy) all confidential/proprietary recorded information should the business transaction not be "actualized".

In summary, from a seller's perspective the boundary between the Planning Phase and Identification is when the seller desires to identify on a one-to-one basis the identity of the prospective seller before providing any additional data.

Similarly, the boundary of the Identification Phase to the Negotiation Phase is marked by characteristics such as:

— the seller requiring no commitments from the buyer apart from the latter agreeing to keep particular detailed information confidential and/or agree to return or provided destroy the same should the Negotiation Phase fail to result in an agreement; and/or,

— any information provided on terms and condition, possible options, etc., before "formal" negotiations are entered into.

F.2.4 Negotiation phase

The Negotiation Phase pertains to all those actions and events involving the exchange of information bundles following the Identification Phase, i.e. a potential buyer and seller having (1) identified the nature of good(s) and/or service(s) to be provided; and, (2) identified each other at a level of certainty, i.e., unambiguity, to their mutual agreement. The process of negotiation is directed at achieving an explicit, mutually understood, and agreed upon goal of a business transaction. This may include such things as the detailed specification of the good or service, quantity, pricing, after sales servicing, delivery requirements, financing, use of agents and/or third parties, etc. This is the key to the entire process because it is during the Negotiation Phase that the direction of the remaining activities in a business transaction will be established.

The end of the Negotiation Phase is marked by the following conditions being present.

1) The particular good or service to be provided by the seller to the buyer has been specified at a level of detail, i.e., granularity, mutually agreed to by both buyer and seller.

2) The buyer and seller have unambiguously identified each other to their mutual satisfaction. Where necessary required authentication requirements and need for type/level of security services agreed to.

3) The buyer and seller have agreed to whether or not agents or third parties are to be involved in the business transaction and, if so, have explicitly stated the specified roles or function these persons are to fulfil.

198) This includes many types and categories of public sector products documents which are available for free but where a "buyer" in downloading them in effect incorporates the negotiated element in a contract formation the primary element of which is the seller maintaining intellectual property rights.

4) The buyer and seller have agreed to terms and conditions pertaining to:

   i) the acceptable equivalent value which the buyer is to provide to the seller in exchange for the latter providing the good or service.

      If an "acceptable equivalent value" is of a monetary nature, this involves agreement on terms of payment, method of payment, financing, etc.

   ii) Transfer of property rights, (e.g., from full and complete ownership to a (permanent or short-term) licence to use, (e.g., as in relation to intellectual property rights).

   iii) Post-actualization requirements, if any have been identified and agreed to {see below Section F.2.6}

5) Contract formation is deemed to have been concluded. Formation of contract can range from:

   i) the seller providing an explicit summary of all the pertinent information exchanged as information bundles exchanged during the Planning, Identification and Negotiation Phases for sign-off by the buyer; to

   ii) the totality of the exchanges of information bundles among seller and buyer (and/or participating agents and/or third parties) during the Planning, Identification and Negotiation Phases resulting in the formation of an implicit contract. Many electronic business transactions will be of this nature, i.e., examples of the "Immediate Settlement" trade model.[199)]

Finally, it should be noted that the results of the Negotiation Phase may well be agreement to conduct electronic business transactions under specified terms and conditions, pre identified options and variables, (e.g., added discount on price, if volume reaches certain threshold levels, etc.). Here the Actualization Phase would in effect consist of multiple instantiations of a pre-agreed upon model of a business transaction.

F.2.5 Actualization phase

The Actualization Phase pertains to all activities or events necessary for the execution of the results of the negotiation. Normally the seller produces or assembles the goods, starts providing the services, prepares and completes the delivery of good or service, etc., to the buyer as agreed according to the terms and conditions agreed upon at the termination of the Negotiation Phase.

Normally, the buyer begins the transfer of acceptable equivalent value, usually in money, to the seller providing the good or service. Where transfers of value of a monetary nature are involved, these can range from pre-paid (P.P.D) to cash-on-delivery (C.O.D), i.e., as found in common international commercial terms (a.k.a., Incoterms), or for pre-paid deposit or no deposit, to staggered payments, financing, to payment at a mutually agreed to date after delivery of acceptance by the buyer of the product/service, (e.g., "no payment/no interest for 90 days").

In addition, it is understood that in transport of a good or a service from a seller to a buyer and the transfer of equivalent acceptable value from buyer to seller, there are associated transfers of property rights. It is assumed that unless special conditions apply, where and how such transfer of property rights are to be transferred is governed by international accepted commercial terms, i.e., Incoterms, (e.g., "F.A.S." or Free-Along Side, or "F.O.B." Free-On-Board, etc.).

F.2.6 Post-actualization phase

The Post-Actualization Phase includes all of the activities or events and associated exchanges of information bundles that occur between the buyer and the seller after the agreed upon good or service is deemed to have been delivered.

These can be activities pertaining to warrantee coverage, service after sales, post-sales financing such as monthly payments or other financial arrangements, consumer complaint handling and redress or some general post-actualization relationships between buyer and seller.

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199) See further 6.6.3.2 "Trade Models by Settlement Type".

These can be activities pertaining to warrantee coverage, service after sales, post-sales financing such as monthly payments or other financial arrangements, consumer complaint handling and redress or some general post-actualization relationships between buyer and seller. This could including ongoing communications pertaining to product recall or fixes of defects, availability of product replacements, (e.g., new models), or associated product availability, available changes in the services provided (or add-ons), available changes in the terms and conditions pertaining to the good or service provided, (e.g., prices/rates, packaging or bundling of services, extensions of warranties, or time period covered, etc.).

F.3 Process component and construction of scenarios and scenario components

Section F.2 above contains several examples of business transactions or parts thereof which can be modelled into re-useable scenario and scenario components. This section provides some further information from the perspective of construction of scenarios and scenario components.

First of all, only two roles of person are presented, i.e., buyer and seller, and these involve internal constraints only, i.e. no External Constraints. Further, "agents" and "third parties" are also entities which can form part of re-useable scenarios involving internal constraints only. Here categories of Persons are not differentiated, i.e., "individual", "organization", "public administration", which pertain to (are the result of) external constraints. This allows one to build generic scenarios without having to include Privacy/Data Protection requirements.

Similarly, the roles of "vendor" and "consumer" are not included since these involve adding properties and behaviours to "seller" and "buyer" pertaining to requirements arising from external constraints in the form of Consumer Protection.

Secondly, one can develop generic base scenarios covering common aspects of the Planning and Identification Phase. For example, accompanying the sending of a catalogue is an initial identification by the seller of prospective buyers and the assignment by the seller of an (initial) customer ID, (e.g., a catalogue subscription provided for free).

Thirdly, one can combine the requirements of the Planning, Identification and Negotiation Phases into a scenario and associated scenario components to support a Mediated Trade Model and associated Basic Mediated Trade Scenario[200]. Here a third party is involved and performs common business activities on behalf of both buyer and seller.

Fourthly, various common business processes forming part of the Actualization Phase of a business transaction can also be modelled as re-useable scenarios and scenario components. Examples here include a "Delivery Scenario," a "Payment Scenario", an "Authentication Scenario", etc.[201]

F.4 Summary of background study supporting the five phases of the process component

Section F.5 provides summary information on the background study which resulted in the five phases of the Process Component of the Business Transaction Model. In Section F.4.1 the Initial View is presented and in F.4.2 the combined results of the analysis of the various buying and selling models. In F.4.3 is found a selected bibliography while in F.5 the key characteristics are noted of the buying and selling models forming part of the background study.

F.4.1 Initial view of process component

In any business transaction there appear to be at least five parts to a process. Each part provides a distinct set of actions or sub-parts for the completion of the business transaction. However, these actions do not occur necessarily sequentially. They are:

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200) See 6.6.3.3 "Trade Models by Participation Type" and Section 5.6.4 "Classification and Components of Open-edi Scenarios" which are part of 6.6 Classification and Identification of Open-edi Scenarios.

201) See further 6.6.4

1) **Identification** - the act of positively identifying buyer and seller, plus other objects to be used in the process.

2) **Negotiation** - the process of settling on price, quantity and other elements of the good or service.

3) **Transaction** - the process of exchanging monetary instruments for the good or service.

4) **Delivery** - the act of placing the good or service into the hands of the buyer.

5) **Client Service** - the actions after the delivery is completed; post-delivery activities, replacement and exchange policies, redress of consumer grievance, to name a few.

Identification

In this part of the process, both buyer and seller need to positively identify themselves. If we take the situation where a buyer enters a store, say, to buy clothing, his or her presence is indication to the seller of intent. However, in a distance-selling situation, both the buyer and the seller need positive identification of the other. Identification can include, for example, product validation or service validation -- I represent a particular clothing line or I am the value-added reseller of Microsoft products. The seller may use this type of identification in the selection of the seller of choice.

Likewise, the seller needs some assurance of the identity of the buyer. As the process continues to the next steps, it will become increasingly more important to assure the correct identity of the buyer.

Negotiation

The most important part of the process is that of negotiation. Here the individual and the organization determine the good or service needed by the individual, the quantity and the price. Other factors such as payment schedules, financing and delivery schedules are also determined. At the conclusion of this stage, both individual and organization will have completed a contract for the good or service and established the mechanism for payment and delivery.

Transaction

Following the negotiation for the service, the next step is the actual production of the good or service and the exchange of payment. In this stage, the good or service is prepared for exchange and payment is made or arranged. The process of this phase has been simplified if the negotiation has been complete and comprehensive.

Delivery

Once the transaction is completed, the good or service is delivered to the individual by the organization. It is not until or the individual receives the good or service, can a basic commerce activity be considered complete.

Client Service

There is an obligation of the organization to provide service after the completion of the transaction and delivery. Normally, this is called client service or post-delivery service. In the negotiation stage, the individual and the organization may agree to conditions of the quality and workmanship, which are warranted by the organization. The organization may also provide post-delivery maintenance of the good or service. There may be other follow-up agreements, which may have been negotiated between individual and organization.

F.4.2 Results of analysis of buying and selling models

F.4.2.1 Overview

A study of several commerce models has identified several models that are quite similar to the initial model proposed above. The models fell into three categories; that of the organization or seller, the buyer and a combined buyer-seller view. A review of these models can be found in the sections under F.5.2 below. This review identified

key attributes that constitute the flow of commerce. Here is a summary of the findings organized in tabular form presented in Figure F-2.[202)]

Attribute (1)	***Original Per-spective*** (2)	***Seller Perspective***			***Buyer Perspective***			***Combined Perspective***
		Depth Selling (3)	***Stages in Making a Sale*** (4)	***Dyadic Sales Process*** (5)	***Industrial Buyer Behaviour*** (6)	***Corporate I-B Process*** (7)	***Cycle of I-B Process*** (8)	***Business Transaction Model*** (9)
Planning		X	X			X	X	X
Establish Need					X	X		
Search					X		X	
Contact		X	X			X		
Source Legitimization				X				
Identification	X			X				X
Discussion		X	X					
Negotiation	X	X	X		X	X		X
Terms				X				
Values				X				
Actualization								X
Transaction	X				X	X		
Delivery	X					X		
Post-Delivery	X	X						X
Evaluation		X	X		X	X		
Relationship maintenance				X				

Figure F.3 — Summary Table of Buying and Selling Models

The original model can now be extended to include three new elements; namely:

a) Planning;

b) Actualization; and,

c) Post-Actualization.

Planning

In this phase, both the buyer and the seller are engaged in a process to decide what actions to take for acquiring or selling a good or service. This is where the buyer may be engaged in determining budgets, gathering information on products and their suppliers, comparing potential suppliers, and brand discrimination, to name a few.

202) The columns are the following:

1) Column (1) is a listing of key attributes taken from the various models.
2) Column (2) is the Original Perspective described in F.4.1 "Initial View of Process Component".
3) Column (3) represents the "Depth Selling Model" described below in F.5.1.
4) Column (4) represents the "Stages in Making a Sale" described below in F.5.2.
5) Column (5) represents "The Dyadic Sales Process" described below in F.5.4.

On the other hand, the seller is gathering intelligence about potential customers, market analysis, product acceptance, branding, etc. He or she may also be building potential client lists and establishing pricing discrimination based on client hierarchies (good risk, frequent buyer, financially sound, etc.).

Actualization

Actualization is the combination of what was originally thought to be two separate activities -- transaction and delivery. The boundary between these two appears to be somewhat blurred and not meaningful. Actualization is essentially the execution of the negotiated work both in terms of exchanging products for payment and the delivery of the products to the buyer.

Post-Delivery (or Post-Actualization)[203)]

This is similar in nature to the originally proposed client service phase. The extension includes actions such as post-sales review, product warranties, payment plans, return policies, or other consumer-related post purchasing actions.

ADDITIONAL SUB-ACTIVITIES

In deriving the common model, we identified several key sub-activities. However, this is not an exhaustive list and it is recognized that there are others that need to be identified. For example, in looking at the area of Planning, several of the models referred to such activities as establishing need, searching for information, developing contact lists, and the identification of product or service sources. Here is a partial list of the sub-activities:

Planning: Establish Need. Initiation: The organization first markets its products to potential sellers; Precipitation: The buyer determines there is a need to purchase.

Buyer: Search among and identify potential suppliers; Evaluate the marketing mix of potential suppliers.

Contact: No "ploys" are used to contact potential buyers.

Identify Needs (For the buyer): Strategy formulation; Project planning; Make-buy analysis; Requirements determination; Specification development.

Arrange to Provide (For the seller): Strategy formulation; Market forecasting; Research and development; Service process design; Information acquisition.

Information Exchange: Market queries; Requests for information; Product/service literature; Requests for quotation; Price quotes.

Precipitating Decisions: Marketing activities; Need for purchase; Timing and financial constraints (i.e. economic situation and market information).

Identification:

Buyer: Determine the requirements for the product or service; Estimate the budget and obtain approval; Determine who the potential sellers are.

Seller: Estimate costs; Determine method of acquiring the product.

Source Legitimization: Different tasks involved if buyer is repurchasing from supplier, or if it is a new relationship; Information from the seller must be transmitted to the buyer to establish itself (a) as an expert, (b) as being similar to the buyer.

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203) Post-Actualization was the eventual term chosen since “delivery”, like payments, could take in several stages after a business transaction was instantiated.

Information Exchange: The buyer transmits information as to the product needed, and which attributes are important; This information varies with the relationship between the buyer and seller; The seller attempts to differentiate its product from the competition, and to have an advantage when negotiating.

Product Decisions: Determine similarities between product needed and products available; Quality and expected life constraints on the product;

Supplier Decisions: Two possible outcomes: (a) Product is differentiated, therefore selection of supplier occurs when product is selected, (b) Products are similar, therefore supplier characteristics need to be selected; Purchasing policy constraints.

Negotiation:

Buyer: Preliminary discussion with sellers; Technical negotiations;

Modification; Commercial negotiations; Select seller.

Seller: Contact manufacturer, or select possible agents; Select agent; Place order with manufacturer or agent.

Discussion: Discussion of tangible and intangible products; Both the buyer and the seller participate.

Doubts: The buyer expresses "doubts, beliefs, statements, ideas, and concepts" about the product.

Attribute Delineation: Explicitly: product features, credit terms, (a) Product quality, (b) Delivery; Implicitly: attribute determination and evaluation.

Attribute Value Negotiation: Determine "limits" (a) Important for the seller: price, delivery dates, product features, (b) For the buyer: price, style, product features.

Actualization:

Payment: Methods, terms

Delivery: Post-delivery inspection; Acceptance; Post-Delivery; Performance Feedback; Relationship Maintenance.

New attributes: Implicit bargaining over attributes; Commitment Decisions; Changes in price, quality, and service constraints from the supplier.

F.4.2.2 Conclusions

It appears that a business transaction, and in particular an electronic business transaction, can be viewed from a process perspective as five distinct activities. By viewing the process through these activities, we can derive the components of each activity and begin to map the standards needs. By providing this common view to business transactions, we can provide a single frame of reference for discussing many of the diverse issues and putting those issues into a context. For example, in Identification, this may be the point to introduce the need for authentication whereas the area of either Negotiation or Transaction may be the point to pursue the issue of digital signatures.

F.4.3 Bibliography

Key sources which were utilized for the background study include:

Books:

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Hill, R. W., Hillier, T. J. (1977) “Focal Points of Buying Activity.” Organizational Buying Behaviour: The Key to More Effective Selling. London: The MacMillan Press Ltd., 30-46.

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Nissen, Mark E. (1997) “The Commerce Model for Electronic Redesign.” Journal of Internet Publishing. http://www.arraydev.com/commerce/JIP/9702-01.htm

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F.5 Survey of buying and selling models forming part of background study

Several economic process models are widely known and in use. They serve as a basis for the Process Component. The models are grouped into three perspectives; that of the organization or seller, the buyer and a combined view of both buyer and seller.

F.5.1 "Depth selling model"

This model was found in J.W. Thompson’s Selling: A Managerial and Behavioral Science Analysis[204)] The stages of the model are:

- Planning
- Contact
- Discussion
- Doubts
- Completion of Negotiations
- Follow-up

This is a model from the organization’s perspective, since the stages concern the selling of goods or services.

Planning

This stage involves all activities performed by the salesman prior to contacting the potential buyer. This could include the preparation of arguments to encourage the individual to purchase the product, anticipation of the individual’s doubts about buying, and the formation of counter-arguments to these doubts. The organization must determine what need the individual has that can be satisfied with a purchase.

Contact

This stage is the responsibility of the organization. It is the moment of initial contact between the buyer and the seller (the individual and the organization via the salesman). Although the organization initiates the contact, the individual must decide to become a partner for the exchange to take place. For the purpose of this paper, the contact stage could be referred to as a closing sub-stage of the planning activity.

204) Thompson, 1973

Discussion

During the discussion stage, the organization must raise the benefits of the product or service to the individual. At this step, the organization presents the arguments determined during the planning stage. The individual participates with questions about the purchase. This stage includes two-way communication between the individual and the organization, which implies that this stage is a part of the negotiation process.

Doubts

At this point, the individual raises doubts about making a purchase and the organization, in turn, must ease these doubts. This is the stage when the organization convinces the individual to purchase. It can be implied that this is a later sub-process of negotiation.

Completion of Negotiation Stage

This is when the organization and the individual determine the terms of the transaction. These could include terms of payment, delivery, and contractual obligations for each party. This model does not include the actual transaction or delivery of the product. The reasoning may be that this is a model for the salesman, and once the purchase is established, the role of the salesman is complete.

Follow-up

The follow-up stage is when the organization must determine the effectiveness of the sales process. This may include whether the organization correctly estimated the individual's need to be satisfied through product purchase, if any of the stages need to be modified for other potential buyers.

F.5.2 "Stages in making a sale"

This model is from the article Behavioral approach to industrial selling[205)] by J.W. Thompson and W.W. Evans. It is accredited to either a salesman or the sales manual for Carborundum Company. The stages of the model are:

— Planning

— Contact

— Discussion

— Negotiation

— Post Sale Analysis

This model is similar to the Depth Selling Model, except that person-to-person interaction, readiness, empathy, and source credibility are applied to this model. The stages of planning, contact, and discussion are identical to the depth selling approach, while the negotiation stage is a combination of the doubts and completion of negotiations stages, and the post sale analysis is the same as the follow-up stage from the Depth Selling Model. For this paper, it is assumed that the stages in this model are attributed to the individual and the organization according to the equivalent stages in the Depth Selling Model.

The concepts that need to be analyzed according to the roles of the organization and the individual are person-to-person interaction, readiness, empathy, and source credibility.

Person-to-person Interaction

For the model, interaction occurs from the beginning of the contact stage to the end of the negotiation stage. This implies that both the individual and the organization are active members of the process from the point of contact through to the end of negotiation.

205) Thompson & Evans, 1969

Readiness

This concept occurs from the planning stage to the end of the contact stage. Readiness refers to the individual's interest in participating in the exchange, but it is one of the organization's roles. The seller must plan for attracting the interest of the potential buyer. During the contact stage, the organization must then modify the plan according to feedback provided by the individual in order to maintain this interest.

Empathy

Empathy is the responsibility of the seller (the organization). This occurs from the contact stage to the end of the negotiation stage. The organization must anticipate the individual's needs, with respect to how they can be satisfied by purchase, and interpret any feedback about the sales process.

Source Credibility

The notion of source credibility occurs from the start of the contact stage up to the end of the post sale analysis (i.e. the end of the exchange process). Source credibility refers to the organization's credibility as a selling partner from the perspective of the individual. It is the responsibility of the organization to ensure that it is viewed as a competent, reliable, and trustworthy trading partner.

F.5.3 "The cycle of industrial-buying process"

This model is from the Roy W. Hill and Terry J. Hillier text, Organizational Buying Behaviour: The Key to More Effective Selling to Industrial Markets[206)] This is a buyer-behaviour model, interpreting the decision-making stages involved in buying a product.

— Commitment Decisions

— Precipitation Decisions

— Product Decisions

— Supplier Decisions

— Commitment Decisions

Precipitating Decisions

According to Hill and Hillier, the first stage in the process it when the organization first markets its products to the supplier (i.e. the initiation stage). However, the first stage in the buying process is actually the precipitation stage. This is when the organizational buyer determines that there is a need to purchase. For the purposes of this paper, an organization whose role is that of the buyer can be referred to as an individual.

Product Decisions

The product-specification stage is when the individual compares product needs with the products available from selling organizations. The buyer is responsible for finding the various products available on the market, and determining which needs can be met by each selling organization.

Supplier Decisions

The supplier-specification stage is when the buyer chooses the best supplier.

206) Bonoma & Zaltman, 1978

Commitment Decisions

This stage occurs at the end of the exchange process. The individual must decide whether or not to continue the relationship with the organization. This decision is made by analysing whether all of the purchase requirements and expectations have been met by the exchange with this supplier.

F.5.4 "The dyadic sales process"

This model is from Organizational Buying Behaviour edited by Thomas Bonoma and Gerald Zaltman, in the chapter “Dyadic Interaction: Some Conceptualizations” by David T. Wilson. The stages of the model are:

— Source Legitimization

— Information Exchange

— Attribute Delineation

— Attribute Value Negotiation

— Relationship Maintenance

This is also a buyer behaviour model, therefore the buying organization is referred to as the individual and the seller can be referred to as the organization.

Source Legitimization

For this model, source legitimization refers to the point when the seller is accepted as a "legitimate and credible partner." (p. 43) Both the individual and the organization must participate in this stage, however it is the responsibility of the organization to ensure that it is viewed as a trusted party.

Information Exchange

At this stage, the buyer is responsible for conveying to the seller what its requirements for the product are, i.e., what "problem" can be solved with a purchase. This may be interpreted as a part of the identification process.

Attribute Delineation

At this point, both the buyer and the seller participate, and determine the terms of the exchange. Some terms discussed may be features of the product, terms of credit and payment, delivery, etc. This may be a sub-process in negotiation.

Attribute Value Negotiation

Both the buyer and the seller are responsible for attribute value negotiation. They must determine the numerical value of the terms of the exchange, and which of the traits are the most important. The end of this stage signifies the completion of the negotiation process.

Relationship Maintenance

During the relationship maintenance stage, the individual and the organization must decide whether or not to continue their relationship. If both parties decide to continue their exchange relationship, “implicit bargaining over exchange values may take place, particularly if problems with performance attributes arise.” (p. 45)

F.5.5 "Industrial buyer behaviour"

This model was found in Patterns in Industrial Buying Behaviour[207)] by W.J. Johnston, and accredited to Bonoma, Zaltman, and Johnston.

— Establish the Need for Products or Services

— Search Among and Identify Potential Suppliers

— Evaluate the Marketing Mix (product, price, promotion, distribution) of Potential Suppliers

— Negotiate for and Enter Agreement About Purchase Terms

— Complete a Purchase

— Evaluate the Purchase's Utility in Facilitating Organizational Goals

No further explanation of this model was found in Johnston's text, and attempts to locate the book the model was referenced to were unsuccessful. Therefore the following conclusions about the stages of the model were assumed.

Establish the Need for Products or Services: This stage is the sole responsibility of the organizational buyer (i.e. individual).

Search Among and Identify Potential Suppliers: Although it is only the individual who must actively participate in this stage, the organization is responsible for ensuring that the buyer will be capable of finding information about the seller's products. This stage may be implied to be the beginning of the search phase.

Evaluate the Marketing Mix of Potential Suppliers: This step, performed by the individual, can be implied to be the end of the search phase. It is the last step prior to contact of the selling organization.

Negotiate for and Enter Agreement About the Purchase Terms: This is the first stage with both the individual and the organization are actively participating and communicating with each other. For this paper, this is simply the negotiation process.

Complete a Purchase: This stage can also be referred to as the transaction. Both the buyer and the seller must fulfil the agreement they negotiated in the previous step. Although both parties are participating in this stage of the model, there may not be any two-way communication, depending upon the terms of the agreement.

Evaluate the Purchase's Utility in Facilitating Organizational Goals: Because the majority of the model involves only the buyer, it may be assumed that this step is meant to be an evaluation from the individual's perspective of the effectiveness of the exchange process.

F.5.6 "The stages of the corporate industrial-buying process for selected items of capital equipment"

This model was originally developed to demonstrate the results of a study, and was found in Organizational Buying Behaviour: The Key to More Effective Selling to Industrial Markets[208)] by Roy W. Hill and Terry J. Hillier. For the purposes of this paper, we have simplified the model.

— Initiation

— Precipitation

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207) Johnson, 1981.

208) Hill & Hillier, 1977. For the complete view, see pages 32 and 33 of the text.

— Identification of Terms and Requirements

— Contact

— Negotiation

— Delivery

— Acceptance

— Payment

— Completion

— Performance Feedback

Initiation and Precipitation: These two stages are similar and may be combined to form one step (i.e. establish need). This modified stage can be considered to be one step with two parts; the buyer perspective and the seller perspective.

Identification of Terms and Requirements: This is when the buying organization determines the desired features of the good. This may be implied to be a search function.

Contact: This is the first point where the buyer and seller communicate.

Negotiation: At this stage, the buyer and seller undergo a series of steps to determine acceptable terms of the product, delivery, and especially payment.

Delivery: This is the only model with mention of the delivery stage. It can be assumed that the party that is responsible for the delivery of the product or service was a term negotiated in the previous stage.

Acceptance, Payment and Completion: These three stages, which are the responsibility of the buying organization, can be combined in order to form the transaction stage. These first two components may be sub-processes in the stage, whereas completion may be assumed to be the completion of the transaction.

Performance Feedback: This final stage is when the buyer and seller must evaluate whether their expectations for the exchange.

Annex G
(informative)

Business transaction model: data component

G.1 Introduction

1) Annex G provides explanatory text for (1) the rules and guidelines; and, (2) the terms and definitions, as well as the figures, found in 6.4 pertaining to the Data Component of the Normative Part of this standard. The rules and guidelines as stated here in Annex G in bold are the same as those stated in 6.4 as well as for the figures even though both have been re-numbered in this Annex G (e.g. Rules and Guidelines 43 through 49 in 6. 4, here are Rules G-1 through G-11).

2) A major basis for this Annex G is the result of work on requirements for standards in support of e-commerce involving participation of various business sectors (e.g. banking, retail, transport, telecommunications, IT, etc.), public policy makers at various levels of government, consumers associations, lawyers (private and public sector with expertise in common and civil law as well as international trade law, ISO and ISO/IEC JTC1 standardizers, etc. This work identified gaps between existing international standards and the need for an integrated approach incorporating requirements of commercial and legal frameworks into electronic business transactions.

3) This is one of three Annexes which provide additional required information on one of the three fundamental components of a business transactions, namely “Person”, ”process”, and “data”. These three fundamental components are presented graphically in Figure G-1 (as taken from Figure 7 in 6.1.5)

4) This Annex is also meant to assist users of this standard who are either not familiar with standards in general or whose main focus to date has been on Functional Services View (FSV) standards only.

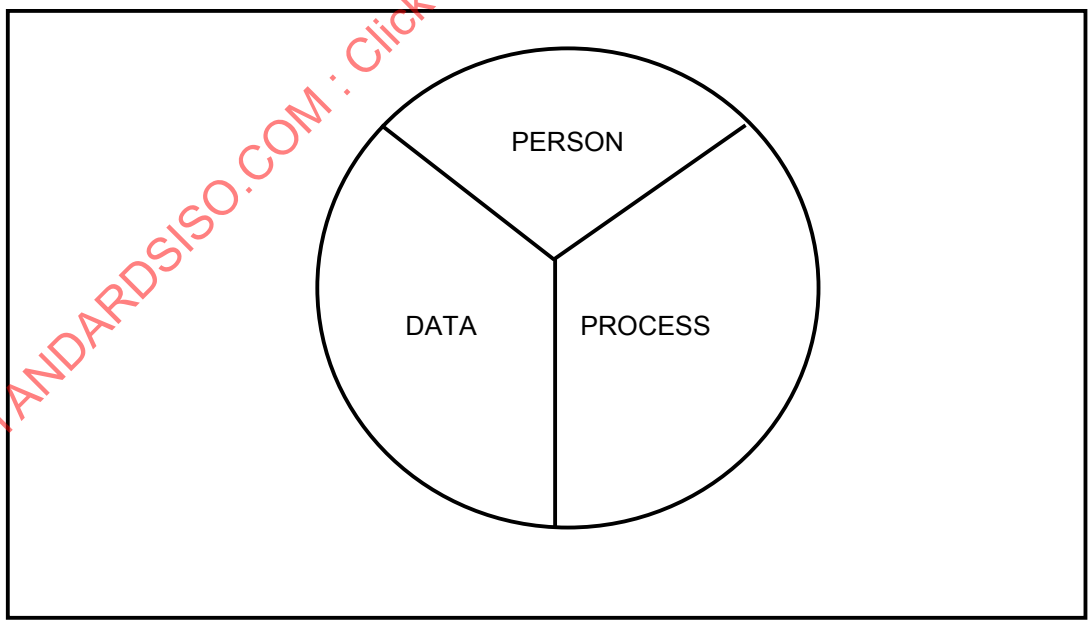

Figure G.1 — Business Transaction Model — Fundamental Components (Graphic Illustration)

A representation of Figure G-1 utilizing the Formal Description Technique (FDT) Unified Modelling Language (UML) as the OeDT here for this rule, yields the following:

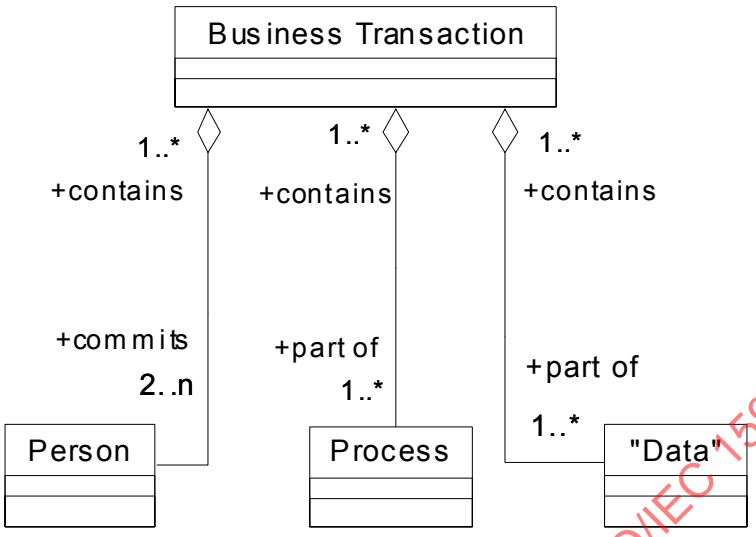

Figure G.2 (UML) — UML-based representation of Figure G-1 — Business Transaction Model — Fundamental Components

G.2 Context: - Business transaction

The context of the "Data Component" is that of data in an (electronic) business transaction (as needed to facilitate widespread adoption and use of Open-edi in support of application areas such as electronic commerce, electronic administration, electronic business, etc.). Two key attributes here are that: (1) it is "business transaction"-based; and, (2) takes place through "electronic data interchange". The definitions for these terms are found in ISO/IEC 14662:1997 (E-F) "Information Technologies - Open-edi Reference Model/Technologies de l'information - Modèle de référence EDI-ouvert".

> *"3.1.4 **business transaction**[209] a predefined set of activities and/or processes of organisations which is initiated by an organisation to accomplish an explicitly shared business goal and terminated upon recognition of one of the agreed conclusions by all the involved organisations although some of the recognition may be implicit"*

> *"3.1.4 **transaction d'affaires:** ensemble prédéterminé d'activités menées par des organisations et/ou de procédures qu'elles suivent, déclenché par une organisation qui vise à atteindre dans les affaires un but expressément partagé, terminé lorsqu'est observée une des conclusions convenues par toutes les organisations prenantes, bien que cette observation puisse être partiellement implicite".*

This definition of business transaction is:

— generic, i.e., independent of whether it is executed through electronic or non-electronic means;

— sector independent, i.e., it applies within and among sectors, (e.g., public/private, industrial, geographic, etc.); and,

— independent of whether the business transaction pertains to "for profit" or "not-for-profit" based exchanges of values.

"Electronic data interchange"

> *"3.1.5 **Electronic Data Interchange (EDI)**[210]: the automated exchange of any predefined and structured data for business purposes among information systems of two or more organisations".*

209) In this standard, referenced as "3.1.07"

210) In this standard, referenced as "3.1.18"

*"3.1.5 **Echange de Données Informatisé (EDI, Electronic Data Interchange)** : échange automatisé de données structurées et prédéfinies pour traiter des affaires entre les systèmes d'information de deux ou plusieurs organisations".*

This definition of EDI is independent of the multiple data types which may be interchanged such as numbers, characters, images, sound, etc.

In the context of the previous business transaction, the "data" component of the Business Transaction Model integrates the following factors:

1) Existing commercial and legal frameworks for business transactions allow for and use both information which is recorded and that which is not, i.e., that known to and used by natural persons in making commitments but not (yet) recorded.

2) Data is a category of recorded information which has specific qualities and particular attributes.

3) Within data as a category of recorded information, there is a particular sub-category known as "data element" also with its specific qualities and particular attributes.

4) There is a category of data element which is structured and for which the permitted values, i.e., contents, are predefined.

   Existing business-to-business applications consist of rule-based business transactions which make extensive and widespread use of code sets, often through tables. These code sets represent common business practices and serves as building blocks of business transactions.

5) A key thrust of this standard is to build confidence and trust, and clarify rules (marketplace, legal, etc.). A major success factor here is the degree to which existing ambiguities in business transactions can be removed through development of (re-useable) Open-edi scenarios and their components. A major characteristic of cost-effective and efficient business operations, customer service, etc., is "paying attention to details". From a "data" perspective, this need for preciseness in data elements is known as "granularity". The higher the degree of granularity, the greater the precision. Precision is necessary to avoid ambiguity.

G.3 Business information to "Recorded Information"

A standard definition for "information" exists independent of whether the information is recorded or not. It is also medium neutral and serves as the basis, i.e., point of departure for this standard.

ISO/IEC 2382 *"Information technology - vocabulary Part 1 - Fundamental Terms"* defines "information" as:

> *"**0.1.01.01 information (in information processing):** knowledge concerning objects, such as facts, events, things, processes, or ideas, including concepts, that within a certain context has a particular meaning*[211)].
>
> ***01.01.01 information (en traitement de l'information):** connaissance concernant un objet tel qu'un fait, un évenement, une chose, un processus ou une idée, y compris une notion, et qui, dans un contexte déterminé, a une signification particulière".*

Rule G-1:

In a business transaction, information is either recorded or it is not.

Basically, information exists in two states:

1) that which is "known" to a natural person, but is not yet recorded in any form; or,

2) that which is recorded on some medium.

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211) ISO/IEC 1087-1:2000, *Terminology work - Vocabulary - Part 1: Theory and application* defines "object" as:

> *"**3.1.1 object:** anything perceivable or conceivable*
>
> NOTE *Objects may be material(e.g. an engine, a sheet of paper, a diamond), immaterial (e.g. conversion ratio, a project plan) or imagined (e.g. a unicorn)"*

Both states are acceptable in the present legal and commercial frameworks and business practices. In essence, a "contract" is a "meeting of the minds" of the natural persons involved. Orally exchanged information resulting from face-to-face meetings and use of the telephone play, etc., and will continue to play, an important role in the planning, negotiating and actualization of business transactions. Judicial proceedings rely heavily on oral presentation and (cross) examination of natural persons, i.e., as "witnesses", i.e., having knowledge of facts, events, things, processes or ideas, including concepts, that within a certain context has a particular meaning. (The admission of written/paper documents containing recorded information as evidence in judicial procedures is an exception to the "Hearsay Rule").

One should note that, business transactions may or may not include recorded information.

In everyday commerce, a contractual agreement, (e.g., the result of the Negotiation Phase Process[212]) in a business transaction), need not involve any recorded information, i.e., can be a verbal contract, (e.g., based on a handshake). Similarly, in court or similar proceedings, evidence is presented orally by natural persons and hearsay is not admissible. One exception to the Hearsay Rule is that written records or documents, i.e., recorded information, may be admitted.

Finally, many present day business transactions especially those involving individual consumers and cash[213] - based involve little or no recorded information interchange between buyer or seller,[214] and the buyer can remain anonymous[215]

Rule G-2:

Electronic business transactions require "recorded information".

Within the existing legal frameworks (international, national, and local laws and regulations), multiple different definitions exist for "record", "document", "recording", etc. Here the concept/term "recorded information", can serve as a common bridge term among existing differences in definitions in the legislative framework as well as those of information technology standards.

Unlike business transactions in general, electronic business transactions are based on and require "recorded information" which is defined as:

> *"3.1.52* ***recorded information***[216]***:*** *any information that is recorded on or in a medium irrespective of form, recording medium or technology utilized, and in a manner allowing for storage and retrieval".*

NOTE 1 This is a generic definition and is independent of any ontology, (e.g., those of "facts" versus "data" versus "information" versus "intelligence" versus "knowledge", etc.).

NOTE 2 Through the use of the term "information" all attributes of this term are inherited in this definition.

NOTE 3 This definition covers:

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.

Current laws and regulations governing government and business operations are mostly "paper-based" and presume the presence of paper records. "Medium neutrality" encapsulates two key attributes: (1) neutrality towards, i.e., independent of, the means, method or technology used to record information; and, (2) neutrality, independent of the type of "medium" on which the information is recorded.

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212) On the five process phases in a business transaction, see further above Clause 5.3 titled "Process Component".

213) It is assumed that "e-cash" has the same attributes/properties and behaviours as "cash".

214) This is not to say that recorded information is not produced to record a completed business transaction. But this is primarily, one of the seller recording the sale of a good or service, (e.g., to comply with external constraints of a regulator such as sales tax).

215) On the issue of anonymity, see further Annex D.4.2.

216) For the ISO French language equivalent for this term/definition, see Annex A.

The meaning and use of the term "medium" often gets confused with form, format, type of representation and use, etc. It is therefore necessary to have a common understanding of the concept/term "medium", i.e., from legal, commercial, information technology, standardization, etc., perspectives.

The concept/term "medium"[217] is defined as:

> *"3.1.32* ***medium***[218]***:*** *physical material which serves as a functional unit, in or on which information or data is normally recorded, in which information or data can be retained and carried, from which information or data can be retrieved, and which is non-volatile in nature".*

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

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

NOTE 3 This definition of "medium" is independent of:

a) form or format of recorded information;

b) physical dimension and/or size; and,

c) any container or housing that is physically separate from material being housed and without which the medium can remain a functional unit.

NOTE 4 This definition of "medium" also captures and integrates the following key properties:

a) the property of medium as a material in or on which information or data can be recorded and retrieved;

b) the property of storage;

c) the property of physical carrier;

d) the property of physical manifestation, i.e., material;

e) the property of a functional unit; and,

f) the property of (some degree of) stability of the material in or on which the information or data is recorded.

The relation of “information” to “recorded information” and medium to existing legal and commercial frameworks for business transactions is illustrated in Figure G-3 (as taken from Figure 19 in 6.4.1).

217) This is a "media neutral" definition. The inclusion of "non-volatile in nature" criteria is to cover latency and records retention requirements. The primary reason for the numerous notes is to capture as completely as possible, as attributes, the properties and behaviours of “medium”.

218) For the ISO French language equivalent of this term and definition, see Annex A