



**International
Standard**

ISO/IEC 15944-1

**Information technology — Business
operational view —**

Part 1:
**Operational aspects of open-edi for
implementation**

*Technologies de l'information — Vue opérationnelle d'affaires —
Partie 1: Aspects opérationnels de l'Edi ouvert pour application*

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

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Foreword

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

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

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

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

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

The changes are as follows:

- [Clause 1](#) (Scope) has been amended to delete a quote of text of ISO/IEC 14662:2010, Clause 4. (However ISO/IEC 14662 remains a normative reference for this document);
- [Clause 2](#) (Normative references) has been updated, a number of references have been moved to the Bibliography;
- Clauses and annexes have been aligned to changes in ISO/IEC Directives, Part 2.
- minor edits of a temporal nature with respect to dated references, changes in URLs referenced, change of font to Cambria, as well as application of the new “ISO House Style”, etc. have been applied.

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

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

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

Introduction

0.1 Purpose and overview

ISO/IEC 14662¹⁾ presents the conceptual architecture necessary for carrying out Open-edi. That architecture described the need to have two separate and related views of business activities. The first is the Business Operational View (BOV). The second is the Functional Service View (FSV). ISO/IEC 14662:2010, Figure 1 illustrates the Open-edi environment. For definitions of the terms in [Figure 1](#), see [Clause 3](#).

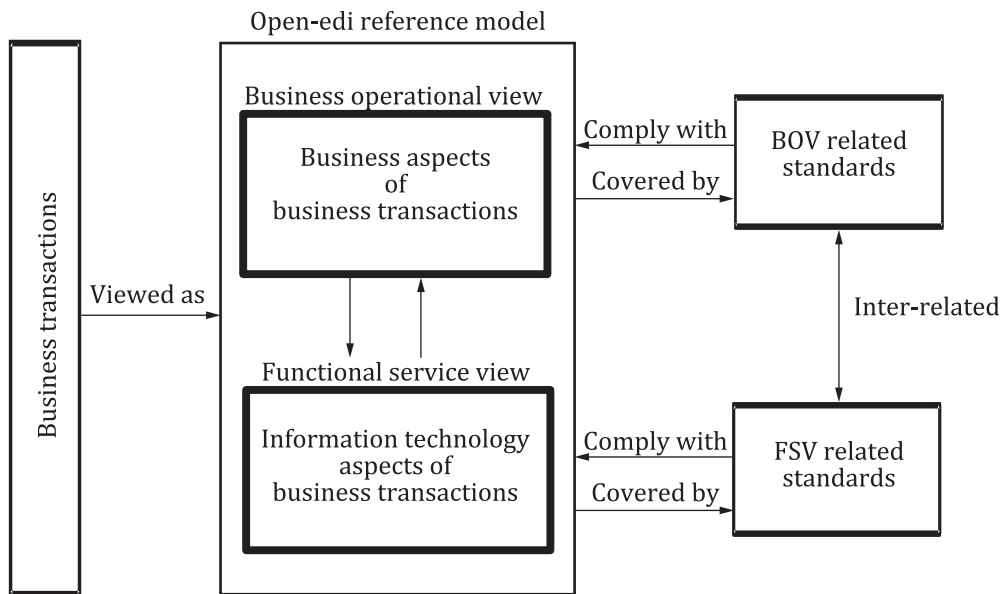


Figure 1 — Open-edi environment

In the BOV, the requirements that the business puts on the exchange of information are described using a modelling technique. ISO/IEC 14662 recognized that there was no single modelling technique identified whilst the International Standard (IS) was in preparation that would satisfy all of the conditions which can be identified as necessary input for the FSV. It was also recognized that business users would need a selection of modelling tools since some tools appear to be better suited to particular types of business specifications and descriptions than others²⁾.

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

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

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

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

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

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

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

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

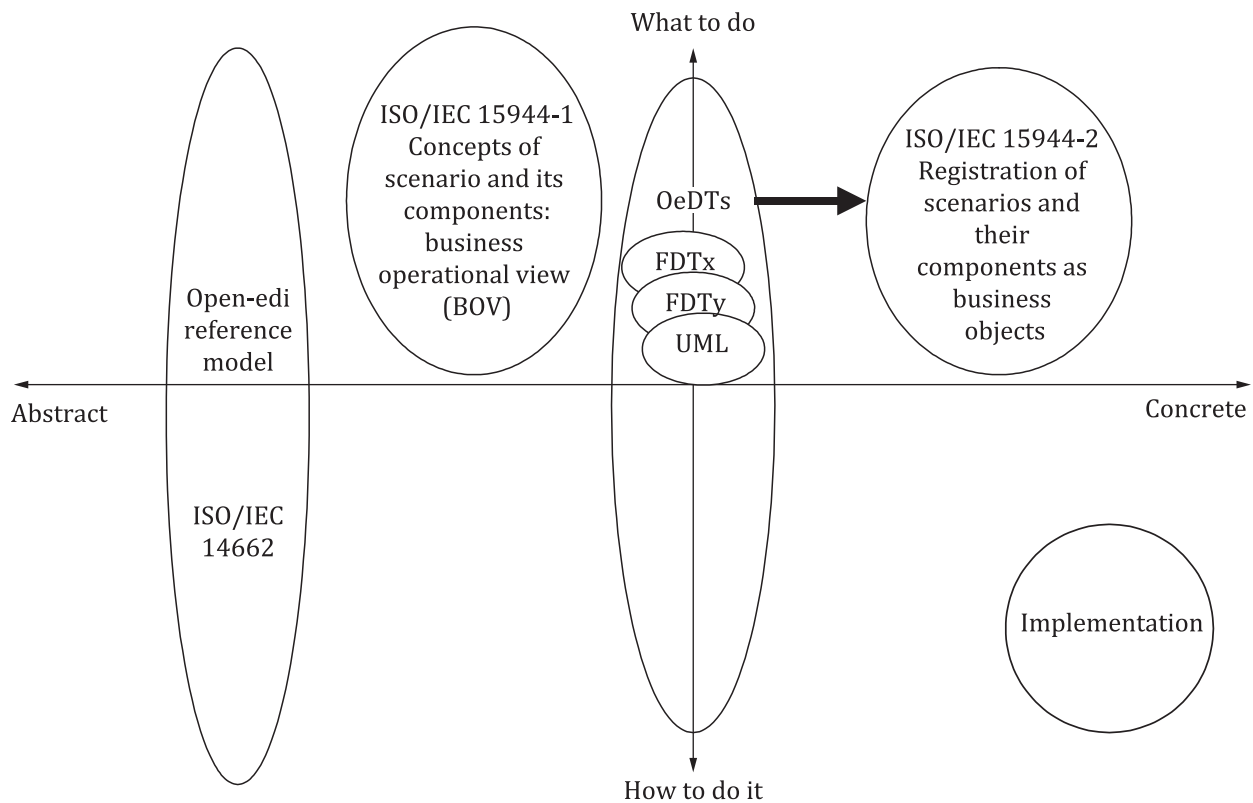


Figure 2 — Aspects of ISO/IEC 15944

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

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

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

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

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

- a) commercial frameworks and associated requirements;
- b) legal frameworks and associated requirements;
- c) public policy requirements, particularly those of a generic nature such as consumer protection and privacy protection;
- d) sectorial and cross-sectorial requirements;
- e) requirements arising from the need to support cultural adaptability requirements. This includes meeting localization and multilingualism requirements, i.e. as may be required to meet requirements of a particular jurisdictional domain or desired for providing a good, service, and/or right in a particular market^[6]. Distinguishing between information technology (IT) interfaces and their multiple human interface equivalents is the recommended approach.

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

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

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

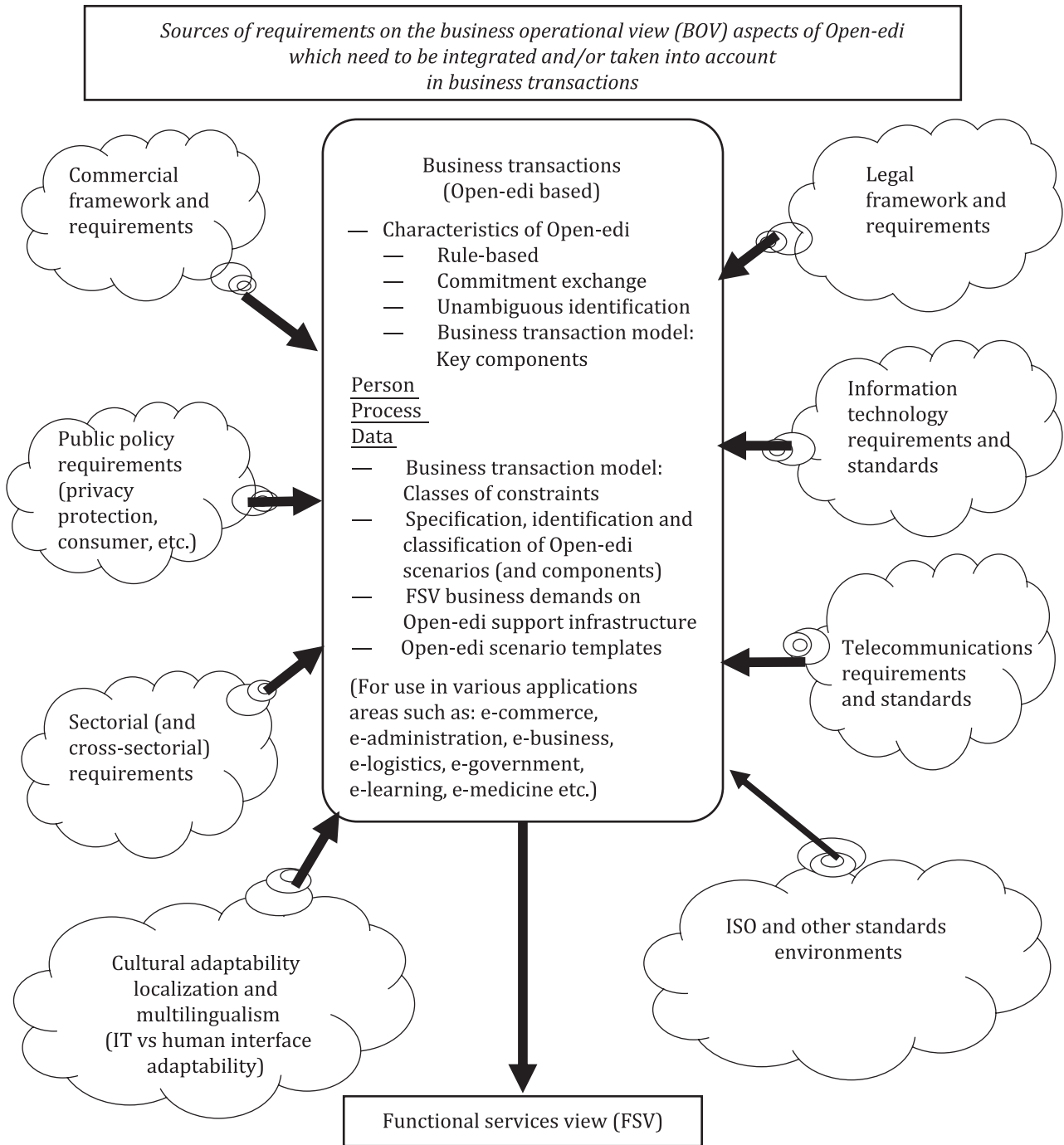


Figure 3 — Integrated View — Business operational requirements focus

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

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

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

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

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

- a) being business transaction-based (of both a financial and non-financial nature);
- b) using information technology (computers and telecommunications);
- c) interchanging electronic data involving establishment of commitments among Persons.

From a commercial, legal and standardization perspective, one can view electronic commerce⁵⁾ as the category of **business transactions**, involving two or more **Persons**, enacted through **Electronic Data Interchange (EDI)**, based on a monetary and for-profit basis.

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

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

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

- a clearly understood purpose, mutually agreed upon goal(s), explicitness and unambiguity;
- pre-definable set(s) of activities and/or processes, pre-definable and structured data;
- commitments among Persons being established through electronic data interchange;
- computational integrity and related characteristics; and
- the above being specifiable through Formal Description Techniques (FDTs)⁷⁾ and executable through information technology systems for use in real world instantiations;

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

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

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

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

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

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

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

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

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

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

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

The user should understand that:

- a) the use of Person with a capital “P” represents Person as a defined term in this document, i.e. as the entity within an Open-edi Party that carries the legal responsibility for making a commitment(s);
- b) “individual”, “organization” and “public administration” are defined terms representing the three common sub-types of “Person”;
- c) the words “person(s)” and/or “party(ies)” are used in their generic contexts independent of roles of “Person” as defined sub-types in this document. A “party to a business transaction” has the properties and behaviours of a “Person” (See further [Clause 6](#), in particular [6.1.3](#) and [6.2](#)).

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

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

0.6 Organization and description of the document

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

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

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

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

Information technology — Business operational view —

Part 1:

Operational aspects of open-edi for implementation

1 Scope

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

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

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

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

2 Normative references

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

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