

Information technology — Open-edi reference model

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the ISO/IEC title page, pages ii to iv, pages 1 to 29 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Amendments issued since publication

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INTERNATIONAL STANDARD

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14662**

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Information technology — Open-edi reference model

Technologies de l'information — Modèle de référence EDI-ouvert



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Descriptors: Data processing, information interchange, trade negotiations, business transactions, messages, electronic messaging, models, reference models.

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. 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.

International Standard ISO/IEC 14662 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 30, *Open electronic data interchange*.

Annex A to Annex F of this International Standard are for information only.

0 Introduction

The economic advantages of Electronic Data Interchange (EDI) are widely recognised. However, the cost of setting up an EDI relationship is still very high due to the need for a detailed bilateral business and technical agreement between the involved business partners. The initial high cost of establishing such an agreement does not justify short term partnerships. It has also been found that implementations involving the management of a large number of partners and their associated agreements are not productive. Consequently, most EDI implementations have been successful only:

- in long term partnerships;
- between a limited number of partners.

Open-edi lowers these barriers by introducing standard business scenarios and the necessary services to support them. Once a business scenario is agreed upon, and the implementations conform to the Open-edi standards, there is no need for prior agreement among trading partners, other than the decision to engage in the Open-edi transaction in compliance with the business scenario. Since Open-edi takes a generic approach, it enables organisations to establish short term relationships quickly and cost effectively. Business scenarios and the necessary supporting services will be available to all who wish to use them, thus providing the necessary means for implementing Open-edi.

The field of application of Open-edi is the electronic processing of business transactions among autonomous multiple organisations within and across sectors (e.g., public/private, industrial, geographic). It includes business transactions which involve multiple data types such as numbers, characters, images and sound.

The Open-edi Reference Model has been developed primarily in order to provide standards required for the inter-working of organisations, through interconnected information technology systems. This model is independent of specific:

- information technology implementations;
- business content or conventions;
- business activities;
- organisations.

The Open-edi Reference Model identifies the required standards for Open-edi and provides a reference for those standards by defining the basic concepts used to develop them. It serves as the basis for co-ordination of work between the different agencies involved in EDI standardisation. It provides the framework for this co-ordination and for the integration of existing and emerging standards and the development of future standards. The Open-edi Reference Model places existing EDI standards in perspective. Some of Open-edi standardisation areas and types of standardisation activities are presented in Annex A and some of the requirements for Open-edi standards in Annex B.

The Open-edi Reference Model uses two views to describe the relevant aspects of business transactions:

- the Business Operational View (BOV);
- the Functional Service View (FSV).

The BOV, addresses the aspects of

- a) the semantics of business data in business transactions and associated data interchanges;
- b) the rules for business transactions, including:
 - operational conventions;
 - agreements;
 - mutual obligations,

which apply to the business needs of Open-edi.

The FSV addresses the supporting services meeting the mechanistic needs of Open-edi. It focuses on the Information Technology aspects of:

- a) functional capabilities;
- b) service interfaces;
- c) protocols.

Such functional capabilities, services interfaces and protocols include:

- capability of initiating, operating and tracking the progress of Open-edi transactions;
- user application interface;
- transfer infrastructure interface;
- security mechanism handling;
- protocols for inter working of information technology systems of different organisations;
- translation mechanisms.

Figure 1 sets out the relationship between the model and these views.

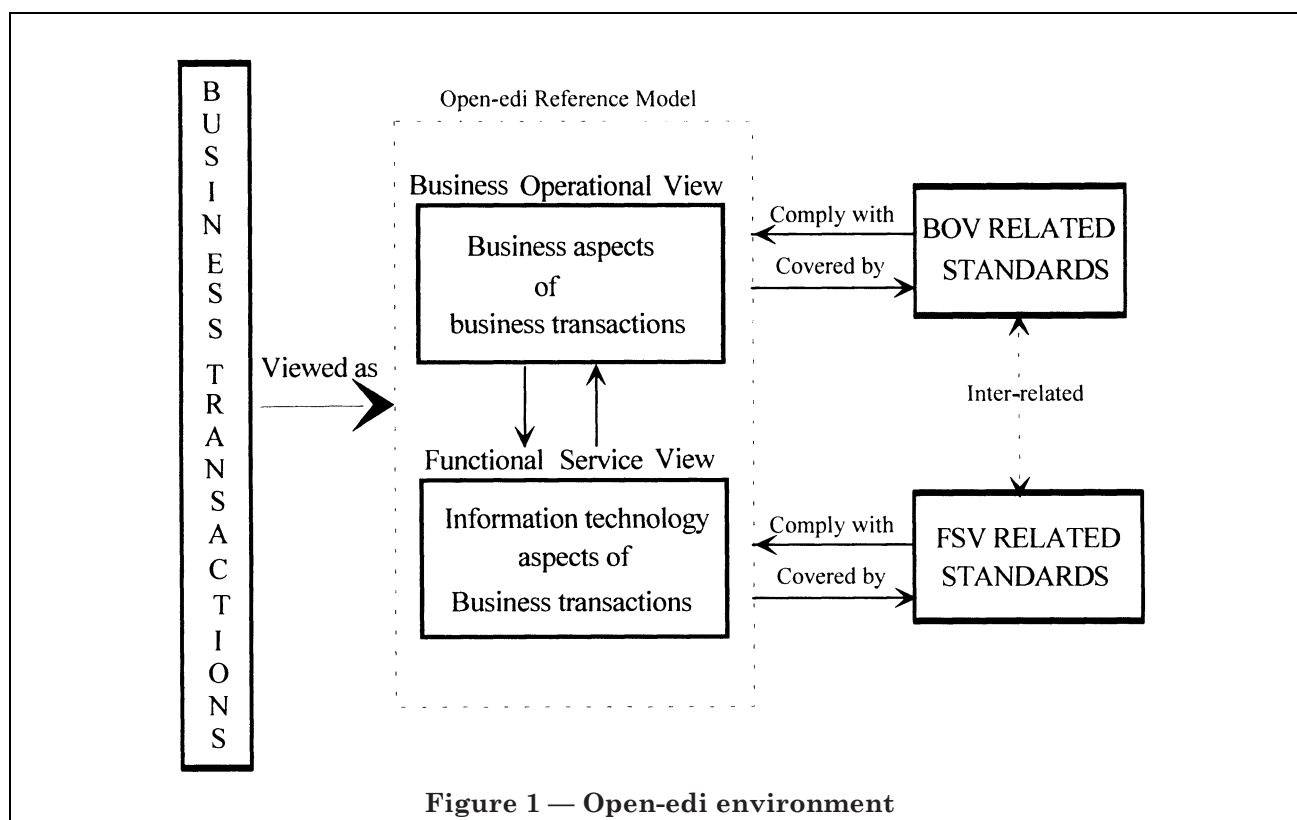


Figure 1 — Open-edi environment

0.1 The co-ordination needs of the Open-edi Reference Model

Standards required for Open-edi cover a large spectrum of areas including but not limited to:

- business aspects;
- support for national and international law and regulation;
- information technology generic standards, such as information modelling standards;
- software engineering standards;
- data modelling standards;
- information technology standards specific to one sector;
- interconnection standards, such as message handling, file transfer, transaction processing, network management;
- security standards.

Development of EDI standards is already taking place in several standardisation bodies and industry groups.

The co-ordination of standards development is essential in order to:

- avoid duplication of effort;
- ensure interoperability of standard conforming solutions;
- ensure technical consistency of standards;
- identify and remedy deficiencies and voids in standards;
- identify and eliminate redundancies and overlaps in standards.

Annex A describes how the Open-edi Reference Model can serve as the basis for co-ordination of work of the different agencies involved in EDI standardisation.

0.2 The technical requirements of the Open-edī Reference Model

Each view of the Open-edī Reference Model corresponds to a class of necessary standards. One class of standards, associated with the BOV in the Open-edī Reference Model, addresses the business issues of Open-edī. Another class of standards, associated with the FSV in the Open-edī Reference Model addresses Information Technology (IT) issues. Each class of standards requires a specific type of expertise needed for their development. By separating the business user aspects of Open-edī from the IT aspects, the Open-edī Reference Model and its associated standards provide flexibility in accommodating changes in IT and user demands without impacting the Open-edī standards related to the business user aspects of Open-edī. Methods of implementing the standards which comply with this framework are not constrained by the model. Therefore inter working among Open-edī systems will be guaranteed while preserving flexibility in implementation.

The implementations of Open-edī will require the co-operation among different types of experts, primarily business users aided by information analysts and IT specialists including telecommunications experts.

In order to support an Open-edī activity, models must be developed which consider aspects of both the external and internal behaviour of organisations. The boundary between the external and internal behaviour will vary among organisations depending on how the implementation has been carried out. The models to be developed must consequently take into consideration those aspects which are necessary to ensure interoperability. Only the external behaviour of organisations affects the interoperability of Open-edī systems. The description of the internal behaviour of Open-edī systems is provided in the model only to support the definition and exposition of the interoperability aspects, and to offer insight to the definitions of the external interfaces required.

0.3 EDI and Open-edī: areas of activity and participation

The following tables illustrate the general context within which EDI activities take place. Table 1 presents the areas of activity; Table 2, the types of bodies which should fulfil those areas of activity; Table 3 identifies typical actors at the time of this International Standard. It is expected that working documents will be created identifying all relevant sectorial actors.

The application of the Open-edī reference model specified in this International Standard enables the evolution of the organisation of the activities detailed in Table 1. That evolution is found in Annex A, and in particular in Table A.1 and Table A.2.

Table headings are explained in Annex A. Table 1, Table 2 and Table 3 have, in addition, a new dimension, below that of Environment, which is characterised as “Formal Recognition”. This is a specific stage between Environment, which is understood to be the existence of all that there is in the development of standard frameworks, and Activity Models, which are understood to be business modelling methods and techniques identified by the frameworks.

Table 1 — Areas of activity

	Meta-standards A	Standards B	Guidance C	Produce product D	Conformance & certification E	Take into use by F
1. Environment	Languages	Laws, Practices	Business Guidelines		Courts, Tribunals	Contracts
2. Formal recognition	Frameworks	Reference Models	BOV & FSV		Testing Bodies	Toolsets
3. BOV activity models	Modelling Languages	Business Scenarios	Conventions		Test Definitions	Applications
4. BOV data models	Modelling Languages	Message Standards	Usage Guidelines		Test Definitions	Actual data
5. FSV technology	Tools, Techniques	Inter-operability Standards	Profiles		Inter-operability Standards	Software, Hardware

Table 2 — Types of bodies that should be involved in performing the different tasks for each cell

	Meta-standards A	Standards B	Guidance C	Produce product D	Conformance & certification E	Take into use by F
1. Environment	LEGAL and	REGULATORY FRAMEWORK BODIES		IMPLEMENTORS and USERS	TESTING and CERTIFICATION BODIES	IMPLEMENTORS and USERS
2. Formal recognition	STANDARDISATION					
3. BOV activity models	PROCESS					
4. BOV data models	BODIES					
5. FSV technology						

Table 3 — Current participants

	Meta-standards	Standards	Guidance	Produce product	Conformance & certification	Used by
Environment	Languages	International National Bilateral			Courts	
Formal recognition	ISO/IEC JTC 1/SC 30	National standards bodies UN/ECE ISO/IEC	ISO/IEC JTC1 SC 30		ISO/IEC	Standards bodies Suppliers Users
BOV activity models	ISO/IEC JTC 1/SC 7 and SC 30 ISO TC 184	ISO and IEC sectorial bodies National standards bodies		non-standard products		Users
BOV data models	ISO/IEC JTC 1/SC 14, SC 21/WG 3 and SC 30	Trade bodies User groups UN/ECE	as previous column plus sectorial groups EWOS	Suppliers	UN/ECE/WP.4/GE.1	Users
FSV technology	ISO/IEC JTC 1	ISO/IEC JTC 1	ISO/IEC JTC 1/SC 30	Manufacturers Suppliers	Many	Users