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Information technology — Business Operational View

Part 6: Technical introduction to e-Business modelling

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Part 6: Technical introduction to e-Business modelling

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Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
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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. 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 2.

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.

In exceptional circumstances, the joint technical committee may propose the publication of a Technical Report of one of the following types:

— type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;

— type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;

— type 3, when the joint technical committee has collected data of a different kind from that which is normally published as an International Standard (“state of the art”, for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

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ISO/IEC TR 15944-6, which is a Technical Report of type 2, was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 32, *Data management and interchange*.

ISO/IEC TR 15944 consists of the following parts, under the general title *Information technology — Business Operational View*:

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

— *Part 2: Registration of scenarios and their components as business objects*

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

— *Part 5: Identification and referencing of requirements of jurisdictional domains as sources of external constraints*

— *Part 6: Technical introduction to eBusiness modelling* [Technical Report]

— *Part 7: eBusiness vocabulary*

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The following parts are under preparation:

— *Part 3: Open-edi description techniques*

— *Part 8: Identification of privacy requirements as external constraints on business transactions*

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Introduction

It is desired to be able to commence eBusiness by simply choosing a particular scenario from the registered set of scenarios and applying the same to the actual, i.e. instantiated, business transaction. In this context, the registered 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 attributes and many conditional and/or optional attributes, i.e. as 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 description with many conditional attributes may be so complex that the semantics could not be clearly compiled even if an excellent description technique is employed. In addition, for those scenarios having the same attributes but with slightly different domains and the combinatorial, it is not evident whether they all have to be interpreted as single scenario class or not. Even if individual scenarios could be formally identified as having a unique identifier, many scenarios that are semantically equivalent may be redundantly registered. The more redundant registration increases, the more confusion occurs.

One of the effective solutions to avoid the redundant registration is to establish a classification scheme based on well-defined criteria, which may reduce the complexity of conditional attributes as much as possible.

This part of ISO/IEC 15944 discusses the fundamentals of business transaction and the principles of eBusiness modelling, from which the classification schemes are derived for Open-edi scenarios and their components. This is in addition to:

1) the use of the templates for scoping Open-edi Scenarios and the rules for specifying Open-edi scenarios and their components as stated in ISO/IEC 15944-1:2002;

2) the use of templates for registering Open-edi Scenarios and their components as stated in ISO/IEC 15944-2:2006; and,

3) the use of templates for the identification and referencing of scenarios and scenario components which are structured to be able to support the requirements of jurisdictional domains as sources of external constraints as stated in ISO/IEC 15944-5:2007.”

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Information technology — Business Operational View —

Part 6:
Technical introduction to e-Business modelling

1 Scope

This part of ISO/IEC 15944 discusses and describes the following three topics of eBusiness modelling:

— fundamentals of business transaction modelling that describe the conceptual aspects of eBusiness;

— principles of eBusiness modelling that specify the semantic aspect of business transactions and their components and relationships involved in the business transaction;

— classification scheme of Open-edi scenarios based on eBusiness modelling.

2 Normative references

The following referenced documents are indispensable for the application 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 15944-1:2002, *Information technology — Business agreement semantic descriptive techniques — Part 1: Operational aspects of Open-edi for implementation*

3 Terms and definitions[1)]

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

3.1
agent
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)".

[ISO/IEC 15944-1:2002 (3.1)]

1) This clause contains a subset of key terms and definitions used in this part of ISO/IEC 15944. For the complete set of concepts and their definitions as well as associated terms used in the ISO/IEC 14662 "*Open-edi Reference Model*" as well as those used in ISO/IEC 15944, see "*Annex D (normative) Consolidated list of normative references for the eBusiness Vocabulary*" in ISO/IEC 15944-7 "*eBusiness Vocabulary*".

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3.2
attribute
characteristic of an object or entity

[ISO/IEC 11179-3:2003 (3.1.3)]

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

[ISO/IEC 10181-2:1996(3.30)]

3.4
business
series of **processes**, each having a clearly understood purpose, involving more than one **Person**, realised through the exchange of recorded information and directed towards some mutually agreed upon goal, extending over a period of time

[ISO/IEC 14662:2004 (3.2)]

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

[ISO/IEC 14662:2004 (3.4)]

3.6
buyer
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

[ISO/IEC 15944-1:2002 (3.8)]

3.7
collaboration space
business activity space where an economic exchange of valued resources is viewed independently and not from the perspective of any **business partner**

NOTE In collaboration space, an individual partner's view of economic phenomena is de-emphasized. Thus, the common use business and accounting terms like purchase, sale, cash receipt, cash disbursement, raw materials, and finished goods is not allowed because they view resource flows from a participant's perspective.

[ISO/IEC 15944-4:2006 (3.12)]

3.8
commitment
making or accepting of a right, obligation, liability or **responsibility** by a **Person** that is capable of enforcement in the **jurisdictional domain** in which the **commitment** is made

[ISO/IEC 14662:2004 (3.5)]

3.9
constraint
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.

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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".

[ISO/IEC 15944-1:2002 (3.11)]

3.10
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 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.

[ISO/IEC 15944-1:2002 (3.12)]

3.11
defined market model
trade **model** where the **buyer** and **seller** accept the entry **terms** of a specified market in advance and where that market has an accepted and recognized source for **business rules** and conventions

NOTE In a defined market, the phases of a business transaction – planning, identification, negotiation, actualization, and post-actualization – are governed by the rules and conventions of the particular defined market.

[ISO/IEC 15944-4:2006 (3.17)]

3.12
Electronic Data Interchange
EDI
automated exchange of any predefined and structured **data** for **business** purposes among information systems of two or more **Persons**

NOTE This definition includes all categories of electronic business transactions.

[ISO/IEC 14662:2004 (3.8)]

3.13
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 2382-17:1999 (17.02.05)]

3.14
external constraint
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**

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

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

[ISO/IEC 15944-1:2002 (3.23)]

3.15
governed
association between an economic agreement and the **business transaction** whose conduct and phases are subject to that economic agreement of the **business transaction**

[ISO/IEC 15944-4:2006 (3.35)]

3.16
identification
rule-based **process**, explicitly stated, involving the use of one or more **attributes**, i.e., data elements, whose value (or combination of values) is used to identify uniquely the occurrence or existence of a specified **entity**

[ISO/IEC 15944-1:2002 (3.26)]

3.17
identifier (in a business transaction)
unambiguous, unique and a linguistically neutral value, resulting from the application of a **rule**-based **identification process**

NOTE 1 Identifiers must be unique within the identification scheme of the issuing authority.

NOTE 2 An identifier is a linguistically independent sequence of characters capable of uniquely and permanently identifying that with which it is associated. {See ISO 19135:2005 (4.1.5)}

[ISO/IEC 15944-1:2002 (3.27)]

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3.18
individual
Person who is a human being, i.e., a natural person, who acts as a distinct indivisible **entity** or is considered as such

[ISO/IEC 15944-1:2002 (3.28)]

3.19
Information Bundle
IB
formal description of the semantics of the **recorded information** to be exchanged by **Open-edi Parties** playing **roles** in an **Open-edi scenario**

[ISO/IEC 14662:2004 (3.11)]

3.20
internal constraint
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 the 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.

[ISO/IEC 15944-1:2002 (3.33)]

3.21
jurisdictional domain
jurisdiction, recognized in law as a distinct legal and/or regulatory framework, which is a source of **external constraints** on **Persons**, their behaviour and the making of **commitments** among **Persons** including any aspect of a **business transaction**

NOTE 1 The pivot jurisdictional domain is a United Nations (UN) recognized member state. From a legal and sovereignty perspective they are considered "peer" entities. Each UN member state, (a.k.a. country) may have sub-administrative divisions as recognized jurisdictional domains, (e.g., provinces, territories, cantons, länder, etc.), as decided by that UN member state.

NOTE 2 Jurisdictional domains can combine to form new jurisdictional domains, (e.g. through bilateral, multilateral and/or international treaties).

EXAMPLE Included here, for example, are the European Union (EU), NAFTA, WTO, WCO, ICAO, WHO, Red Cross, ISO, the IEC, the ITU, etc.

NOTE 3 Several levels and categories of jurisdictional domains may exist within a jurisdictional domain.

NOTE 4 A jurisdictional domain may impact aspects of the commitment(s) made as part of a business transaction including those pertaining to the making, selling, transfer of goods, services and/or rights (and resulting liabilities) and associated information. This is independent of whether such interchange of commitments are conducted on a for-profit or not-for-profit basis and/or include monetary values.

NOTE 5 Laws, regulations, directives, etc., issued by a jurisdictional domain are considered as parts of that jurisdictional domain and are the primary sources of external constraints on business transactions.

[ISO/IEC 15944-5:2006 (3.67)]

3.22
model
abstraction of some aspect of reality

[ISO 19115:2003 (4.9)]

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3.23
Open-edi
electronic data interchange among multiple autonomous **Persons** to accomplish an explicitly shared business goal according to **Open-edi standards**

[ISO/IEC 14662:2004 (3.14)]

3.24
Open-edi Description Technique
OeDT
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 processable form

[ISO/IEC 14662:2004 (3.16)]

3.25
Open-edi Party
OeP
Person that participates in **Open-edi**

NOTE Often referred to generically in this, and other eBusiness International Standards, (e.g., parts of the ISO/IEC 15944 multipart "eBusiness" International Standard) as "party" or "parties" for any entity modelled as a Person playing a role in Open-edi scenarios.

[ISO/IEC 14662:2004 (3.17)]

3.26
Open-edi scenario
OeS
formal specification of a class of **business transactions** having the same **business** goal

[ISO/IEC 14662:2004 (3.18)]

3.27
Open-edi standard
standard that complies with the Open-edi Reference Model

[ISO/IEC 14662:2004 (3.19)]

3.28
organization
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.

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

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3.29
partner
sub-type of **Person** that includes **buyer** and **seller**

[ISO/IEC 15944-4:2006 (3.51)]

3.30
Person
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".

[ISO/IEC 14662:2004 (3.24)]

3.31
principle
fundamental, primary assumption and quality which constitutes a source of action determining particular objectives or results

NOTE 1 A principle is usually enforced by rules that affect its boundaries.

NOTE 2 A principle is usually supported through one or more rules.

NOTE 3 A principle is usually part of a set of principles which together form a unified whole.

EXAMPLE Within a jurisdictional domain, examples of a set of principles include a charter, a constitution, etc.

[ISO/IEC 15944-2:2006 (3.81)]

3.32
privacy protection
set of **external constraints** of a **jurisdictional domain** pertaining to recorded information on or about an identifiable **individual**, i.e. personal information, with respect to the creation, collection, management, retention, access and use and/or distribution of such recorded information about that **individual** including its accuracy, timeliness, and relevancy

NOTE 1 Recorded information collected or created for a specific purpose on an identifiable individual, i.e. the explicitly shared goal of the business transaction involving an individual, shall not be utilized for another purpose without the explicit and informed consent of the individual to whom the recorded information pertains.

NOTE 2 Privacy requirements include the right of an individual to be able to view the recorded information about him/her and to request corrections to the same in order to ensure that such recorded information is accurate and up-to-date.

NOTE 3 Where jurisdictional domains have legal requirements which override privacy protection requirements these must be specified (e.g. national security, investigations by law enforcement agencies, etc.).

[ISO/IEC 15944-5:2006 (3.109)]

3.33
process
series of actions or events taking place in a defined manner leading to the accomplishment of an expected result

[ISO/IEC 15944-1:2002 (3.53)]

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